

ONKYO SERVICE MANUAL

QUARTZ SYNTHESIZED TUNER AMPLIFIER MODEL TX-910 MODEL TX-930

Black and Silver models

| | |
|----------------------|--------------------------|
| BHMD, BHMDN | 120V AC, 60Hz |
| BHMP, BHMPF, MP, MPF | 230V AC, 50Hz |
| BHMW | 120V or 220V AC, 50/60Hz |
| BHMQA | 240V AC, 50Hz |

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK Δ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

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ONKYO
AUDIO COMPONENTS

SPECIFICATIONS

AMPLIFIER SECTION

Power Output:

Dynamic Power Output:

Continuous Power Output:

Total Harmonic Distortion:

IM Distortion:

Damping Factor:

Frequency Response:

RIAA Deviation:

Sensitivity and Impedance:

Phono Overload:

Signal-to-Noise Ratio:

Tone Controls:

Muting:

LOUDNESS (−30dB):

TX-930

60 watts per channel, min. RMS, at 8 ohms, both channels driven, from 40Hz to 20kHz, with no more than 0.2% THD.

2 × 100 watts at 4 ohms

2 × 75 watts at 8 ohms

2 × 80 watts at 4 ohms, 1kHz (DIN)

2 × 65 watts at 8 ohms, 1kHz (DIN)

0.2% at rated power

0.1% at 30 watt output

0.2% at rated power

0.1% at 30 watt output

50 at 8 ohms

20 — 30,000 Hz ± 1dB

20 — 20,000 Hz ± 0.8dB

Phono: 2.5mV/50 kohms

CD/Tape Play: 150mV/50 kohms

Tape Rec: 150mV/3.5 kohms

120mV RMS at 1kHz, 0.2% THD

Phono: 80dB (at 5mV input, IHF-A)

CD/Tape: 100dB (IHF-A)

Bass: ± 10dB at 100Hz

Treble: ± 10dB at 10kHz

— ∞

+7dB at 70Hz, +5dB at 10kHz

TX-910

45 watts per channel, min. RMS, at 8 ohms, both channels driven, from 40kHz to 20kHz, with no more than 0.3% THD.

2 × 80 watts at 4 ohms

2 × 60 watts at 8 ohms

2 × 60 watts at 4 ohms, 1kHz (DIN)

2 × 50 watts at 8 ohms, 1kHz (DIN)

0.3% at rated power

0.1% at 30 watt output

0.3% at rated power

0.1% at 30 watt output

50 at 8 ohms

20 — 30,000 Hz ± 1dB

20 — 20,000 Hz ± 0.8dB

Phono: 2.5mV/50 kohms

CD/Tape Play: 150mV/50 kohms

Tape Rec: 150mV/3.5 kohms

120mV RMS at 1kHz, 0.3% THD

Phono: 80dB (at 5mV input, IHF-A)

CD/Tape: 100dB (IHF-A)

Bass: ± 10dB at 100Hz

Treble: ± 10dB at 10kHz

— ∞

+7dB at 70Hz, +5dB at 10kHz

TUNER SECTION

FM:

Tuning Range:

Usable Sensitivity:

50dB Quieting Sensitivity:

Capture Ratio:

Image Rejection Ratio:

IF Rejection Ratio:

Signal-to-Noise Ratio:

Alternate Channel

Attenuation:

Selectivity:

AM suppression Ratio:

Harmonic Distortion:

Frequency Response:

Stereo Separation:

Muting Level:

AM:

Tuning Range:

Usable Sensitivity:

Image Rejection Ratio:

IF Rejection Ratio:

Signal-to-Noise Ratio:

Harmonic Distortion:

—230V/Worldwide models—

87.5—108.00MHz (50kHz steps)

87.5—108.00MHz (50kHz steps) or

(200kHz steps) (Worldwide model)

Mono: 12.4dBf, 1.2 μV, 75ohms

1.2 μV (S/N 26dB, 40kHz Devi.)

75ohms DIN

Stereo: 19.2dBf, 2.5 μV, 75ohms

25 μV (S/N 46dB, Devi.)

75ohms DIN

Mono: 18.2dBf, 2.2 μV, 75ohms

Stereo: 38.2dBf, 22 μV, 75ohms

1.5dB

85dB

90dB

Mono: 70dB

Stereo: 65dB

50dB DIN (±300kHz, 40kHz dev.)

50dB

Mono: 0.15%

Stereo: 0.30%

30—15,000Hz±1.5dB

40dB at 1kHz

30dB at 100—10,000Hz

17.2dBf, 4 μV

522—1610kHz (9kHz steps)

522—1610kHz (9kHz steps) or

530—1710kHz (10kHz steps) (World wide model)

30 μV

40dB

40dB

40dB

0.8%

—120V model—

87.9—107.9MHz (200kHz steps)

Mono: 12.4dBf, 2.3 μV

Stereo: 18.2dBf, 4.5 μV

Mono: 18.2dBf, 4.5 μV

Stereo: 38.2dBf, 45 μV

1.5dB

40dB

90dB

Mono: 70dB

Stereo: 65dB

55dB

50dB

Mono: 0.15%

Stereo: 0.30%

30—15,000Hz±1.5dB

40dB at 1kHz

30dB at 100—10,000Hz

17.2dBf, 4 μV

530—1710kHz (10kHz steps)

30 μV

40dB

40dB

40dB

0.8%

GENERAL

Dimensions (W×H×D):

Weight:

TX-930

455×120×316mm

17-15/16" ×4-6/8" ×12-7/16"

8.0kg, 17.6 lbs.

TX-910

455×120×316mm

17-15/16" ×4-6/8" ×12-7/16"

7.2kg, 15.9 lbs.

Remote control transmitter RC-223S

Transmitter: Infrared
 Signal range: Approx. 5 meters (16ft. × 4")
 Power supply: Two "AA" batteries (1.5V × 2)

Specifications and features are subject to change without notice.

SERVICE PROCEDURES

1.Replacing the fuses

For continued protection against fire hazard, replace

only with same type and same rating fuse.

| Circuit No. | Part No. | Description | Model | Type |
|-------------|----------|-----------------------|--------|----------|
| F901 | 252049 | 4A(ST-6),Primary | TX-910 | MD/MW |
| F901 | 252050 | 5A(ST-6),Primary | TX-930 | MD/MW |
| F902 | 252073 | 1.6A-SE-EAK,Primary | TX-910 | MP/MW/MQ |
| F902 | 252075 | 2.5A-SE-EAK,Primary | TX-930 | MP/MW/MQ |
| F951 | 252074 | 2.2A-SE-EAK,AC outlet | TX-930 | MP |

2.Safety-check out

(Only U.S.A. model)

After correcting the original service problem,perform the following safety check before releasing the set to the customer.

Connect the insulating-resistance tester between the plug of power supply cord and nickel screw on the back panel.

Specifications: 3.3Mohm $\pm 10\%$ at 500V.

3.Change of voltage

Worldwide models are equipped with a voltage selector to conform with local power supplies. This switch is located on the back panel. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on.

This switch is set to 220V at the factory. Voltage is changed by sliding the groove in the switch with the screwdriver to the right or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on.

4.Step band selector switch

Worldwide models are equipped with a step band selector switch. This switch is located on the back panel. This switch is set to 50kHz (FM) and 9kHz (AM) at the factory, but may have to be reset to 100kHz and 10kHz depending on the area where the unit is used.

| De-emphasis | FM step | AM step |
|----------------------|---------|---------|
| Europe: 50 μ sec | 50kHz | 9kHz |
| U.S.A.: 75 μ sec | 200kHz | 10kHz |

5.Changing the band step

With the exception of the models below, a BAND STEP selector switch is not provided.

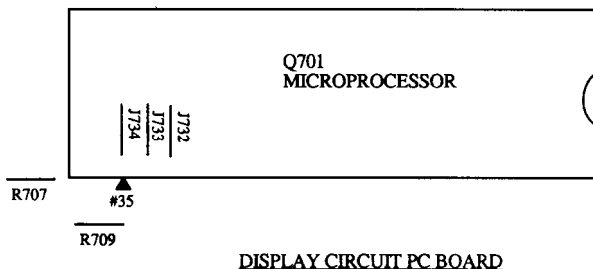
(FM)

| MODEL | BAND STEP | R707(10k Ω) | J734 |
|-------|----------------------------|---------------------|---------|
| UD | 200kHz \rightarrow 50kHz | Add | Cut |
| UP/UQ | 50kHz \rightarrow 200kHz | | Shorted |

(AM)

| MODEL | BAND STEP | R709(10k Ω) | J732 |
|-------|--------------------------|---------------------|---------|
| UD | 10kHz \rightarrow 9kHz | | Shorted |
| UP/UQ | 9kHz \rightarrow 10kHz | Add | Cut |

Refer to the page 23.

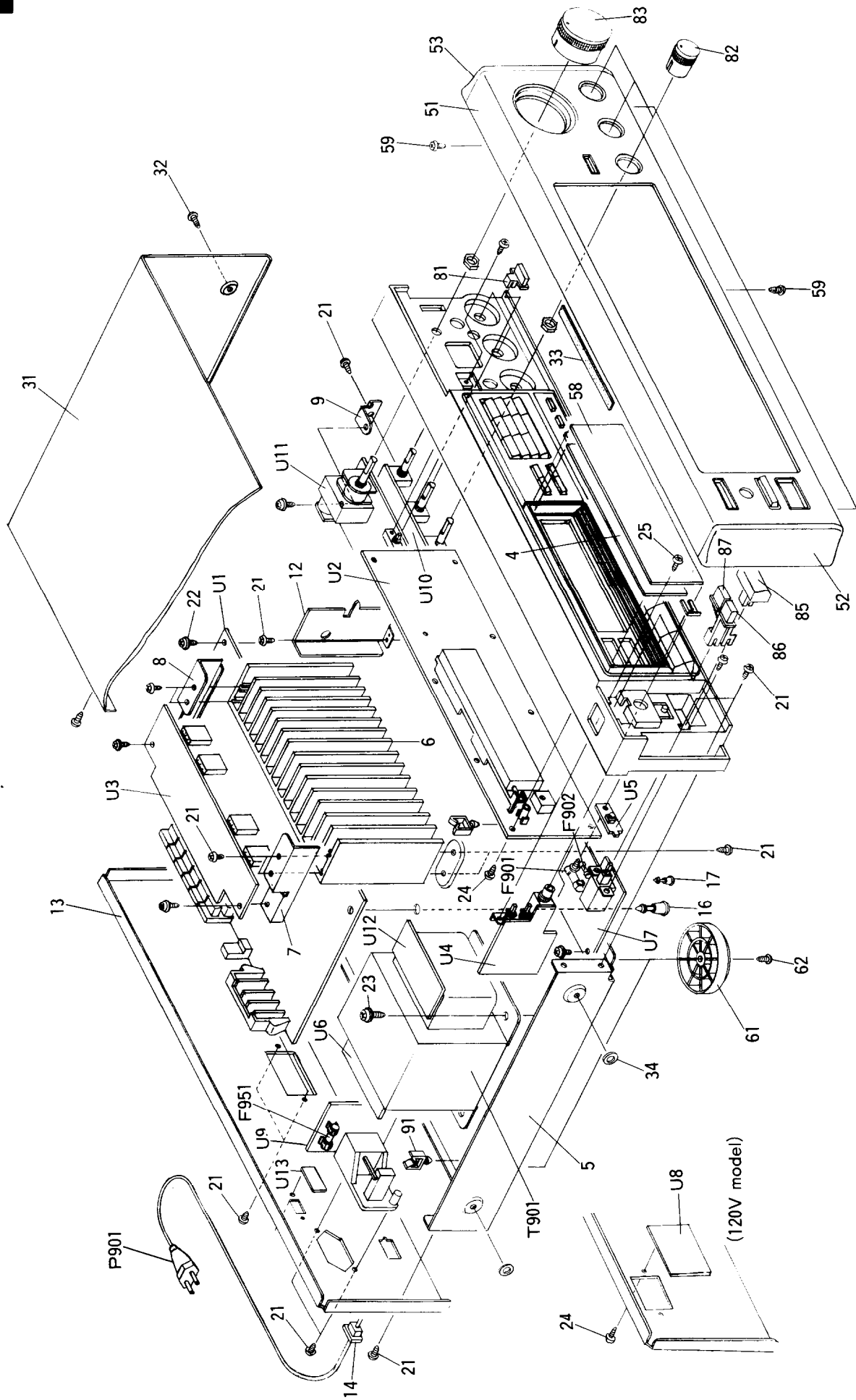


6.Memroy preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month to keep the back-up system operative. The period of time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorter when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

EXPLODED VIEW

MODEL TX-930



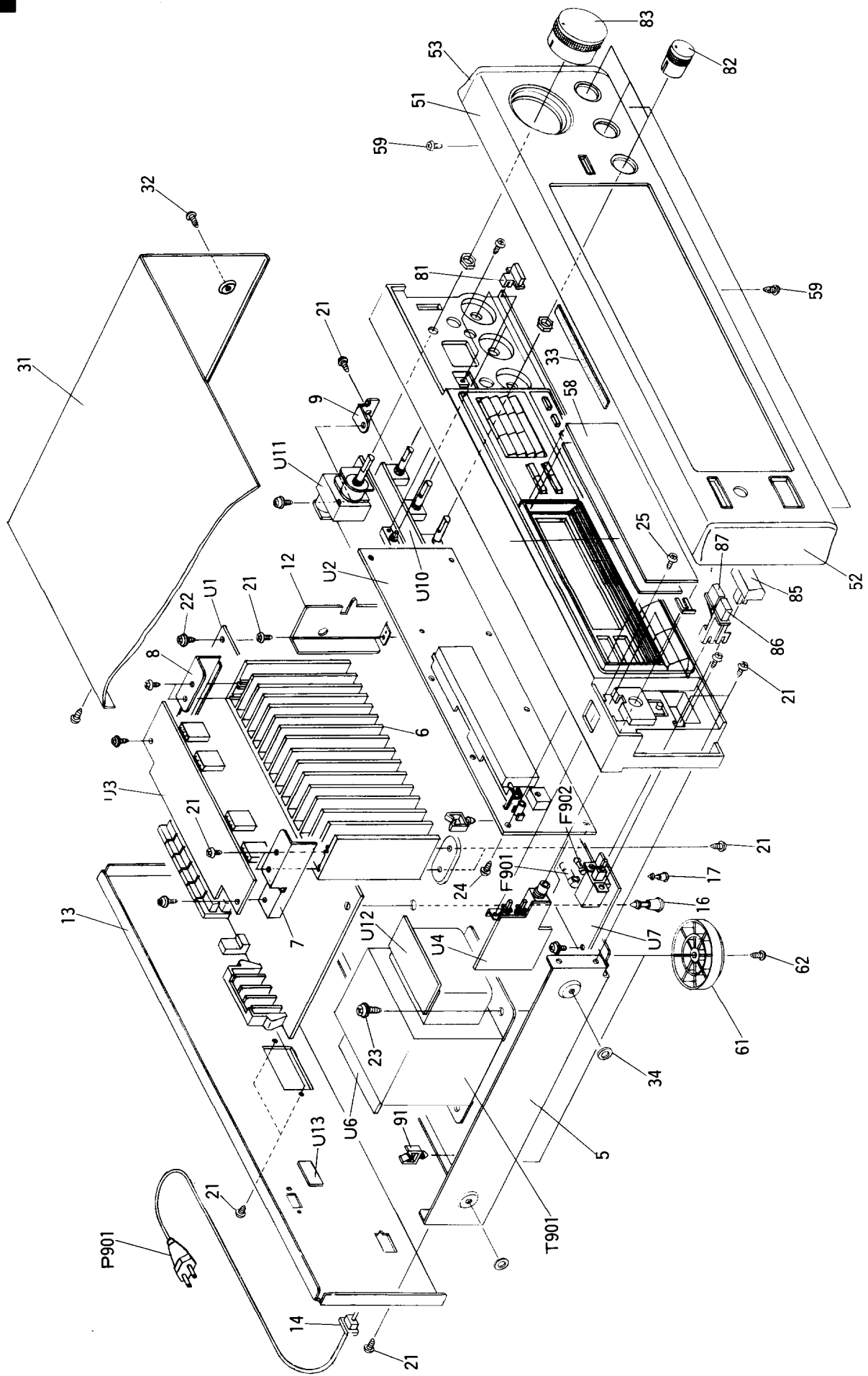
PARTS LIST

| REF. NO. | PART NO. | DESCRIPTION | REF. NO. | PART NO. | DESCRIPTION | REF. NO. | PART NO. | DESCRIPTION |
|----------|-------------|---------------------------------|------------|-------------|-----------------------------------|----------|-------------|---------------------------------------|
| 1 | 27110749Y | Front bracket ass'y | 86 | 28324170 | Knob, Speaker A | U3 | 1A415527-3 | NAAF-4327-3, Power amplifier circuit |
| 4 | 27110750Y | Front bracket ass'y <S> | 87 | 28324172 | Knob, Speaker A <S> | | | pc board ass'y <D> |
| 5 | 28133254Y | Back plate | | 23824171 | Knob, Speaker B | | 1A415527-3A | NAAF-4327-3A, Power amplifier circuit |
| 6 | 27100028Y | Chassis | | 23824173 | Knob, Speaker B <S> | | | pc board ass'y <P/W/Q> |
| 7 | 27160293Y | Radiator | 91 | 27300833 | WS-2NS Clamp | U4 | 1A415528-3 | NASW-4328-3, Headphone terminal |
| 8 | 27141441Y | Bracket LH | P901 | 2520150 | 5A(ST-6) Primary fuse <D/W> | | | pc board ass'y <D> |
| 9 | 27141442Y | Bracket RH | P902 | 252075 | 2.5A-SE-EAK, Primary fuse <P/W/Q> | | 1A415528-3A | NASW-4328-3A, Headphone terminal |
| 12 | 27130643AY | Bracket, shield | P951 | 252074 | 2A-SE-EAK, Fuse <P> | | | pc board ass'y <P/W/Q> |
| 13 | 27121686Y | Rear panel <D> | P901 | 253163Y or | AS-UC-6 #18, | U5 | 1A415529-3 | NASW-4329-3, Power switch |
| | 27121687Y | Rear panel <P> | | 253174Y | Power supply cord <D> | | | pc board ass'y |
| | 27121689Y | Rear panel <W> | | 253164Y or | AS-CBE, | U6 | 1A415530-3 | NAETC-4330-3, Terminal pc board |
| | 27121690Y | Rear panel <Q> | | 253175Y | Power supply cord <P/W> | U7 | 1A415531-3 | NAPS-4331-3, Power supply circuit |
| 14 | 27300750 | Bushing, cord | | 253170 | AS-SAA, Power supply cord <Q> | | | pc board ass'y <D> |
| 16 | 27190524 | KGLS-14RT, Holder | P902 | 25060044 | Terminal GND | | 1A415531-3A | NAPS-4331-3A, Power supply circuit |
| 17 | 27190266 | KGLS-12RT, Holder | P951 | 25050904 | NSCT-2P697, AC outlet <Q> | | | pc board ass'y <P> |
| 21 | 834430088 | 3TTS+8B(BC), Self-tapping screw | Q503, Q504 | 2202282, | 2SA1265N-R, | | 1A415531-3B | NAPS-4331-3B, Power supply circuit |
| 22 | 831130088 | 3TTW+8B, Self-tapping screw | | 2202283, | 2SA1265N-O, | | | pc board ass'y <W> |
| 23 | 830440089 | 4TTC+8C(BC), Self-tapping screw | | 2201693, | 2SA1491-O, | | 1A415531-3C | NAPS-4331-3C, Power supply circuit |
| 24 | 833430080 | 3TTP+8P(BC), Self-tapping screw | | 2201694 or | 2SA1491-Y or | | | pc board ass'y <Q> |
| 25 | 82143006 | 3P+6FN(BC), Pan head screw | | 2201696 | 2SA1491-P, Power transistors | U8 | 1A415532-3 | NAETC-4332-3, Outlet terminal |
| 26 | 801433 | 3SMS10W SW+14B(BC), Sems | Q505, Q506 | 2202292, | 2SC3182N-R, | | | pc board ass'y <D> |
| | | Self-tapping screw | | 2202293, | 2SC3182N-O, | U9 | 1A415533-3 | NAETC-4333-3, Outlet terminal |
| 31 | 28184471AY | Top cover | | 2201703, | 2SC3855-O, | | | pc board ass'y <P> |
| 32 | 834430088 | 3TTS+8B(BC), Self-tapping screw | | 2201704 or | 2SC3855-Y or | | 1A415533-3A | NAETC-4333-3A, Outlet terminal |
| 33 | 28140680 | Cushion | | 2201706 | 2SC3855-P, Power transistors | | | pc board ass'y <W> |
| 34 | 27270212 | Spacer <P/W/Q> | T901 | 2300753AY | NPT-1129D, Power transformer <D> | U10 | 1A415534-3 | NAAF-4334-3, Tone control circuit |
| 51 | 1A415701K | Front panel ass'y | | 2300754Y | NPT-1129P, Power transformer <P> | | | pc board ass'y <D> |
| | 1A416701K | Front panel ass'y <S> | | 2300755Y | NPT-1129DG, Power transformer <W> | | 1A415534-3A | NAAF-4334-3A, Tone control circuit |
| 52 | 28125226BY | End cap L | | 2300756Y | NPT-1129Q, Power transformer <Q> | | | pc board ass'y <P/W/Q> |
| 53 | 28125227BY | End cap R | U1 | 1A415525-3 | NARF-4325-3, Tuner circuit | U11 | 1A415535-3 | NAETC-4335-3, Volume control circuit |
| 58 | 28191617Y | Clear plate | | | pc board ass'y <D> | | | pc board ass'y |
| 59 | 833430080 | 3TTP+8P(BC), Self-tapping screw | | 1A415525-3A | NARF-4325-3A, Tuner circuit | U12 | 1A415537-3 | NAETC-4337-3, Terminal pc board ass'y |
| 61 | 27175254 | Leg | | 1A415525-3B | NARF-4325-3B, Tuner circuit | U13 | 1A415538-3 | NASW-4338-3, Voltage selector switch |
| 62 | 834430088 | 3TTS+8B(BC), Self-tapping screw | | | pc board ass'y <W> | | | pc board ass'y <W> |
| 81 | 28324162Y | Knob, Loudness | U2 | 1A415526-3 | NADIS-4326-3, Display circuit | | | NOTE: : Black model only |
| | 28324177Y | Knob, Loudness <S> | | | pc board ass'y <D> | | | <S>: Silver model only |
| 82 | 28324150-1A | Knob, Level | | 1A415526-3A | NADIS-4326-3A, Display circuit | | | <D>: 120V model only |
| | 28324151 | Knob, Level <S> | | | pc board ass'y <P/Q> | | | <P>: 230V model only |
| 83 | 28324163 | Knob, Volume | | 1A415526-3B | NADIS-4326-3B, Display circuit | | | <W>: Worldwide model only |
| | 28324184 | Knob, Volume <S> | | | pc board ass'y <P/Q> | | | <Q>: 240V model only |
| 85 | 28324140 | Knob, Power | | | pc board ass'y <W> | | | |
| | 28324184 | Knob, Power <S> | | | | | | |

NOTE: THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

EXPLODED VIEW

MODEL TX-910



PARTS LIST

| REF. NO. | PART NO. | DESCRIPTION | REF. NO. | PART NO. | DESCRIPTION | REF. NO. | PART NO. | DESCRIPTION |
|----------|----------------|---|------------|-------------|--|----------|-------------|--|
| 1 | 27110763Y | Front bracket ass'y | 83 | 28324163 | Knob, Volume | U2 | 1A419526-4 | NADIS-4326-4, Display circuit pc board ass'y <D> |
| 4 | 27110764Y | Front bracket ass'y <S> | 85 | 28324182 | Knob, Volume <S> | | 1A419526-4A | NADIS-4326-4A, Display circuit pc board ass'y <P/Q> |
| 5 | 28133254Y | Back plate | | 28324140 | Knob, Power | | 1A419526-4B | NADIS-4326-4B, Display circuit pc board ass'y <W> |
| 6 | 27160228Y | Chassis | | 28324184 | Knob, Power <S> | | 1A419527-4 | NAAF-4327-4, Power amplifier circuit pc board ass'y <D> |
| 7 | 27160272A Y or | Radiator | 86 | 28324170 | Knob, Speaker A | U3 | 1A419527-4A | NAAF-4327-4A, Power amplifier circuit pc board ass'y <P/W/Q> |
| 8 | 27160290Y | Radiator | | 28324172 | Knob, Speaker A <S> | | 1A419528-4 | NASW-4328-4, Headphone terminal pc board ass'y <D> |
| 9 | 27141441Y | Bracket LH | 87 | 23824171 | Knob, Speaker B | | 1A419528-4A | NASW-4328-4A, Headphone terminal pc board ass'y <P/W/Q> |
| 10 | 27141442Y | Bracket RH | | 23824173 | Knob, Speaker B <S> | U5 | 1A419529-4 | NASW-4329-4, Power switch pc board ass'y |
| 11 | 27141443Y | Bracket PC | 91 | 27300833 | WS-2NS, Clamp | U7 | 1A419531-4 | NAPS-4331-4, Power supply circuit pc board ass'y <D> |
| 12 | 27130643AY | Bracket, shield | | 252049 | 4A(ST-6), Primary fuse <D/W> | | 1A419531-4A | NAPS-4331-4A, Power supply circuit pc board ass'y <P> |
| 13 | 27121691Y | Rear panel <D> | | 252073 | 1.6A-SE-EAK, Primary fuse <P/W/Q> | | 1A419531-4B | NAPS-4331-4B, Power supply circuit pc board ass'y <W> |
| 14 | 27121692Y | Rear panel <P> | | 253163Y or | AS-UC-6 #18. | | 1A419531-4C | NAPS-4331-4C, Power supply circuit pc board ass'y <Q> |
| 15 | 27121694Y | Rear panel <W> | | 253174Y | Power supply cord <D> | U10 | 1A419534-4 | NAAF-4334-4, Tone control circuit pc board ass'y <D> |
| 16 | 27121695Y | Rear panel <Q> | | 253164Y or | AS-CBE | | 1A419534-4A | NAAF-4334-4A, Tone control circuit pc board ass'y <P/W/Q> |
| 17 | 27190524 | KGLS-14RT, Holder | | 253175Y | Power supply cord <P/W> | U11 | 1A419535-4 | NAETC-4335-4, Volume control pc board ass'y |
| 18 | 27190266 | KGLS-12RT, Holder | | 253176 | AS-SAA, Power supply cord <Q> | U13 | 1A419538-4 | NASW-4338-4, Voltage selector switch pc board ass'y <W> |
| 19 | 834430088 | 3TTS+8B(BC), Self-tapping screw | P902 | 25060044 | Terminal GND | | | |
| 20 | 831130088 | 3TTW+8B, Self-tapping screw | Q503, Q504 | 2202492 | 2SA1264N-R, | | | |
| 21 | 830440089 | 4TTC+8C(BC), Self-tapping screw | | 2202493 | 2SA1264N-O, | | | |
| 22 | 833430080 | 3TTP+8P(BC), Self-tapping screw | | 2202243 | 2SA1694-O, | | | |
| 23 | 82143006 | 3P+6FN(BC), Pan head screw | | 2202244 | 2SA1694-Y or | | | |
| 24 | 801433 | 3SMS10W, SW+14B(BC), Self-tapping screw | Q505, Q506 | 2202246 | 2SA1694-P, Power amplifier transistor | | | |
| 25 | | | | 2202502 | 2SC3812N-R, | | | |
| 26 | | | | 2202503 | 2SC3812N-O, | | | |
| 27 | | | | 2202253 | 2SC4467-O, | | | |
| 28 | | | | 2202254 | 2SC4467-Y or | | | |
| 29 | | | | 2202256 | 2SC4467-P, Power amplifier transistor | | | |
| 30 | | | | 2300757Y | NPT-1130D, Power transformer <D> | | | |
| 31 | 28184471AY | Top cover | | 2300758Y | NPT-1130P, Power transformer <P> | | | |
| 32 | 834430088 | 3TTS+8B(BC), Self-tapping screw | | 2300759Y | NPT-1130DG, Power transformer <W> | | | |
| 33 | 28140680 | Cushion | | 2300760Y | NPT-1130Q, Power transformer <Q> | | | |
| 34 | 27270212 | Spacer <P/W/Q> | U1 | 1A419525-4 | NARF-4325-4, Tuner circuit pc board ass'y <D> | | | |
| 35 | 1A419701K | Front panel ass'y | | 1A419525-4A | NARF-4325-4A, Tuner circuit pc board ass'y <P/Q> | | | |
| 36 | 1A420701K | Front panel ass'y <S> | | 1A419525-4B | NARF-4325-4B, Tuner circuit pc board ass'y <W> | | | |
| 37 | 28125226BY | End cap L | | | | | | |
| 38 | 28125227BY | End cap R | | | | | | |
| 39 | 28191617Y | Clear plate | | | | | | |
| 40 | 833430080 | 3TTP+8P(BC), Self-tapping screw | | | | | | |
| 41 | 27175254 | Leg | | | | | | |
| 42 | 834430088 | 3TTS+8B(BC), Self-tapping screw | | | | | | |
| 43 | 28324162Y | Knob, Loudness | | | | | | |
| 44 | 28324177Y | Knob, Loudness <S> | | | | | | |
| 45 | 28324150-1 | Knob, Level | | | | | | |
| 46 | 28324151A | Knob, Level <S> | | | | | | |

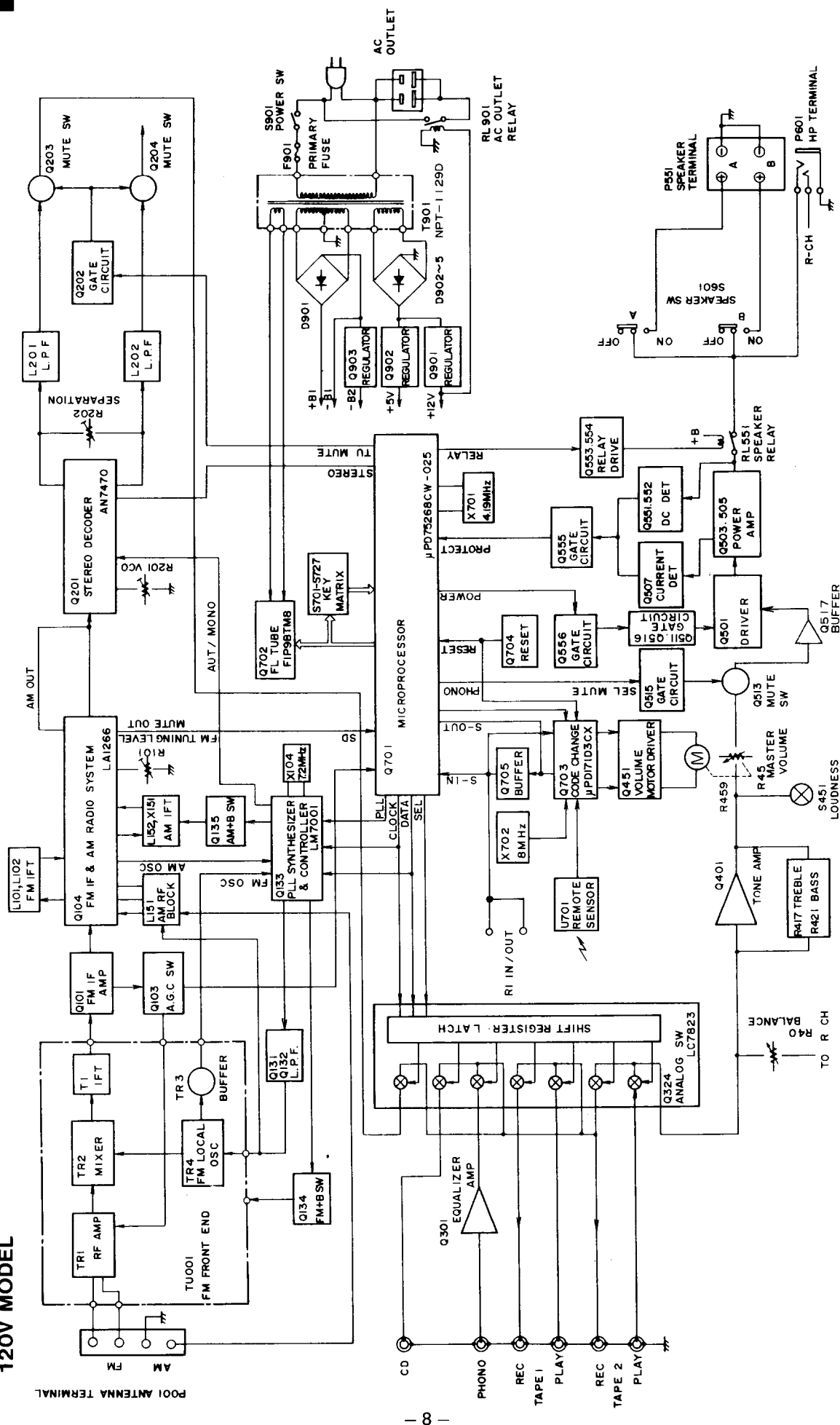
NOTE: : Black model only
 <S>: Silver model only
 <D>: 120 V model only
 <P>: 230 V model only
 <W>: Worldwide model only
 <Q>: 240 V model only

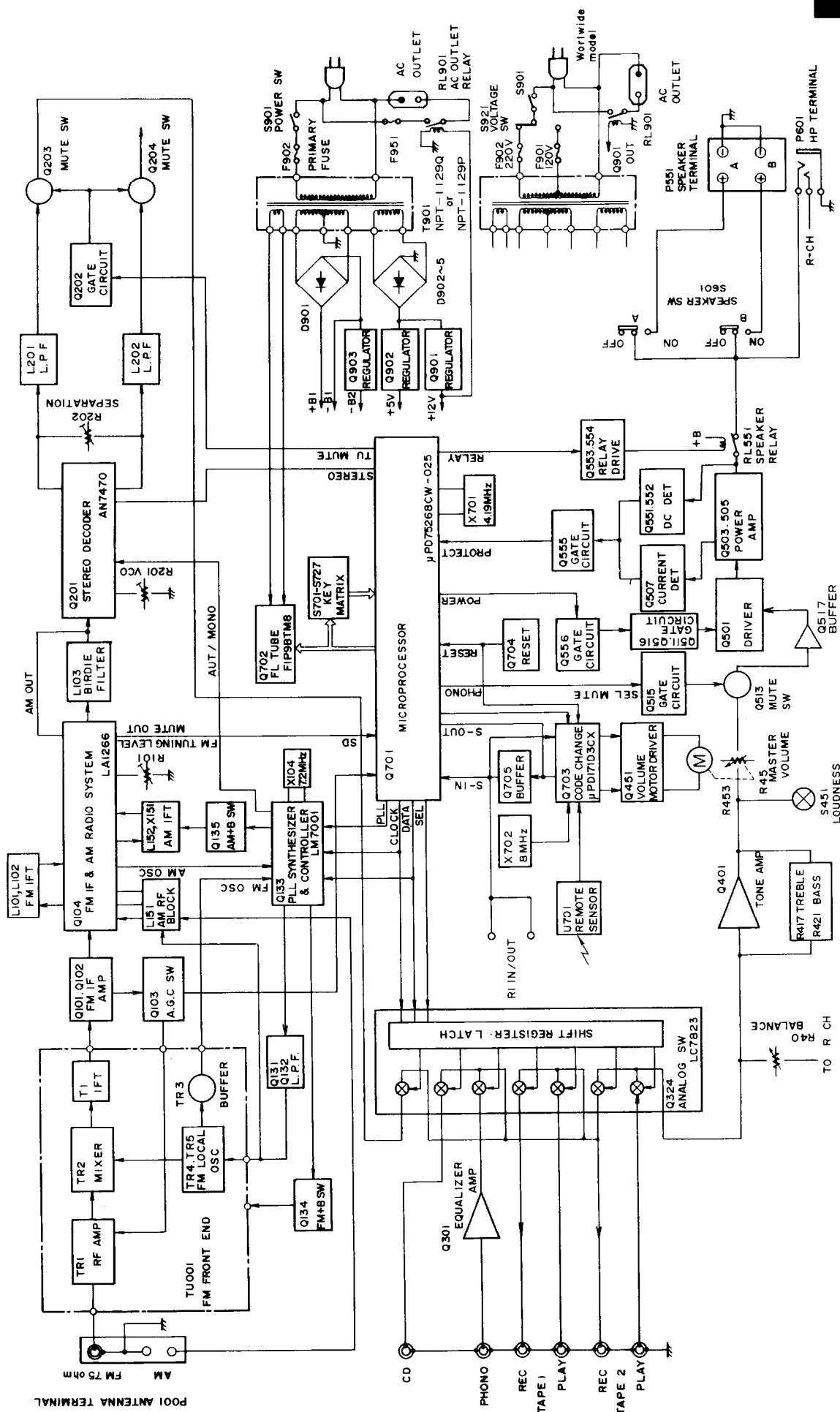
NOTE: THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

BLOCK DIAGRAM

MODEL TX-930

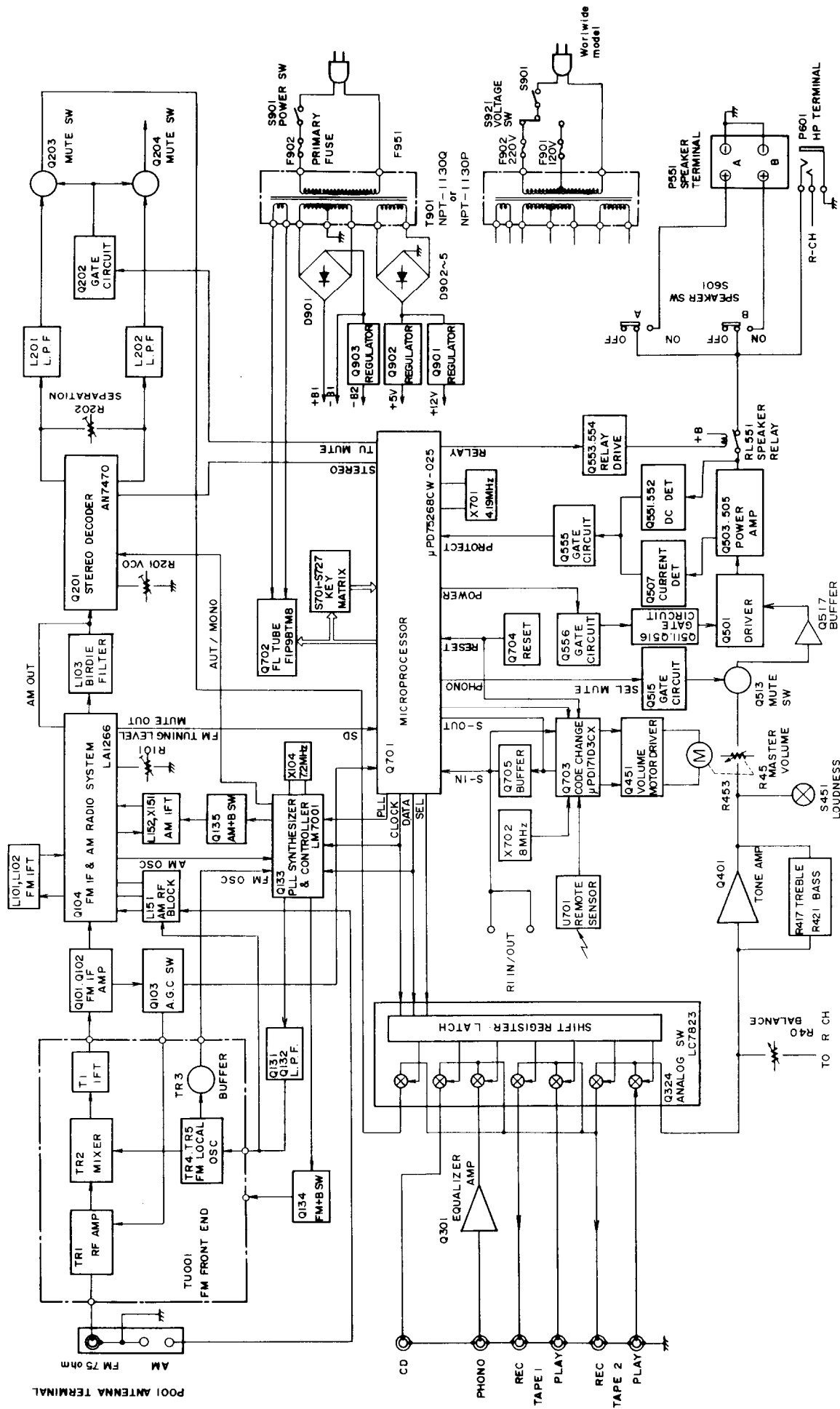
120V MODEL





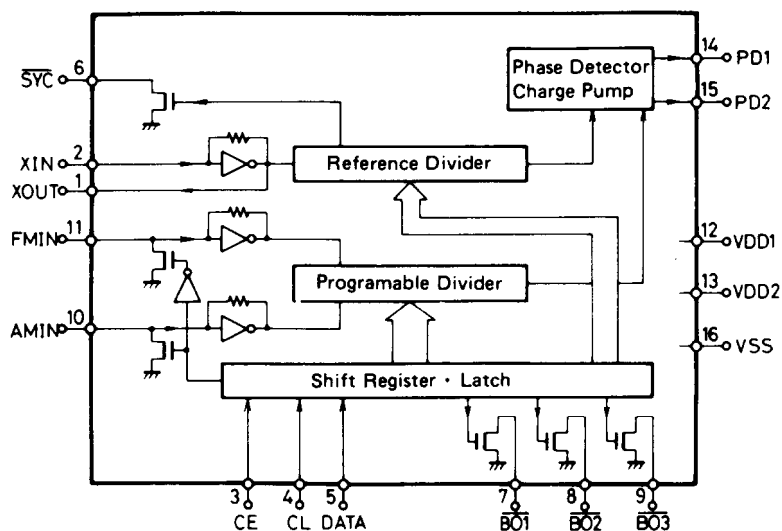


OTHER MODELS

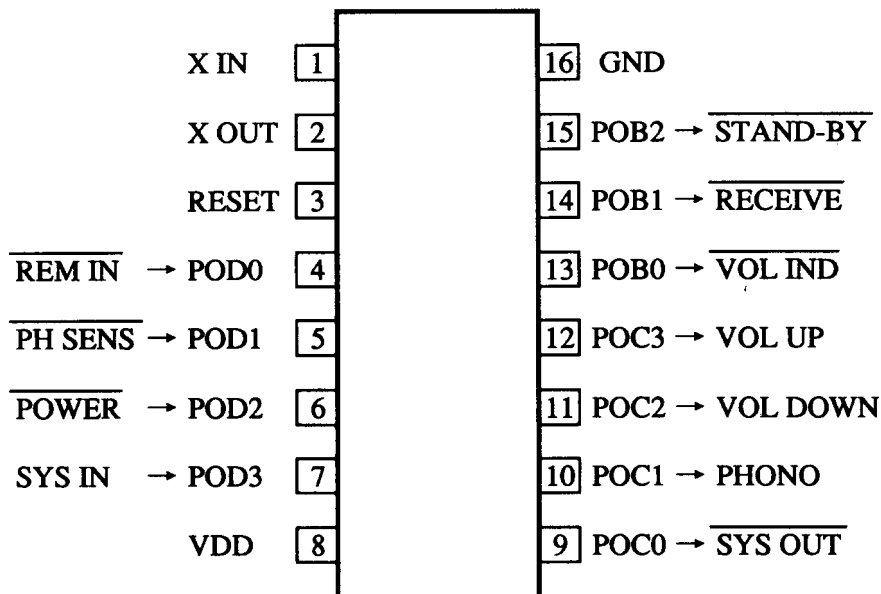
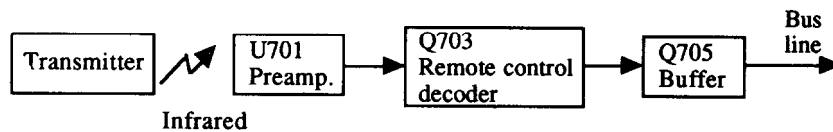


IC BLOCK DIAGRAM AND DESCRIPTION

LM7001(PLL synthesizer and controller)

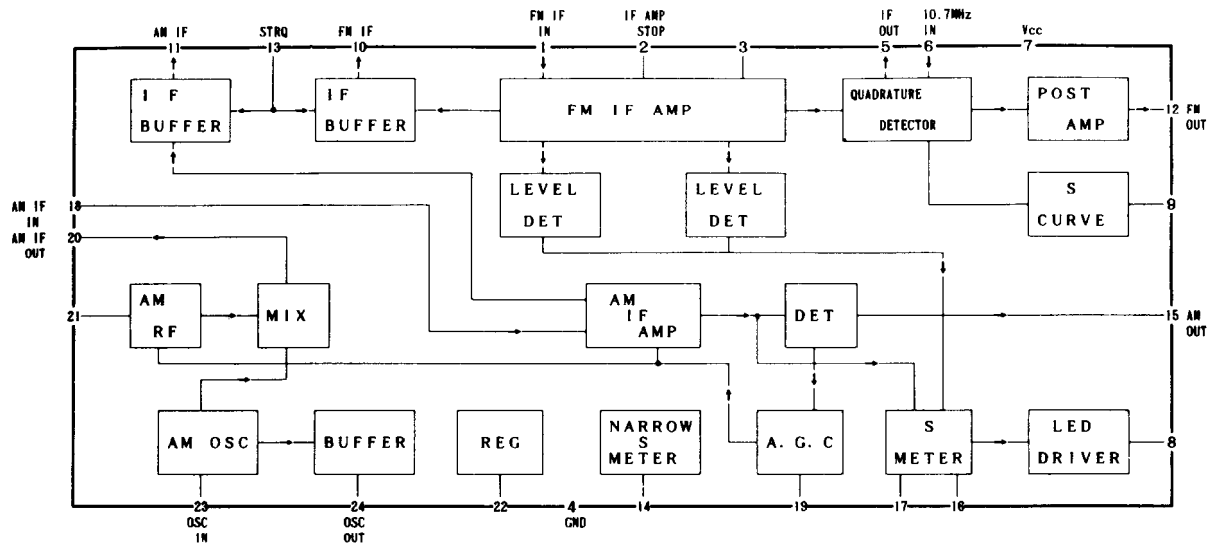


| Pin No. | Terminal | Description |
|---------|-----------|---|
| 1 | XOUT | Connect to the 7.2 MHz crystal oscillator. |
| 2 | XIN | |
| 3 | CE | Chip enable terminal. Connect to the PLL terminal of micro processor. |
| 4 | CL | Serial clock input terminal. Connect to the CLOCK terminal of micro processor. |
| 5 | DATA | Serial data input terminal. Connect to the DATA terminal of micro processor. |
| 6 | SYN | Not used. |
| 7 | AUTO/MONO | Auto/Mono control output terminal. "H" when Auto. |
| 8 | BO2 | FM control signal output terminal. "L" when FM. |
| 9 | BO3 | AM control signal output terminal. "L" when AM. |
| 10 | AMIN | AM local oscillator input terminal. |
| 11 | FMIN | FM local oscillator terminal. |
| 12 | VDD1 | Power supply terminal for back-up. |
| 13 | VDD2 | Power supply terminal. |
| 14 | PD1 | Charge pump output of the phase detector which constitutes the PLL. High level is output when the divided local oscillator frequency is high than the reference frequency. In the opposite case, low level is output. Floating occurs when the frequencies matched. The output is applied to the variable capacitor diode in the local oscillator through the low pass filters. |
| 15 | PD2 | |
| 16 | VSS | Ground terminal. |

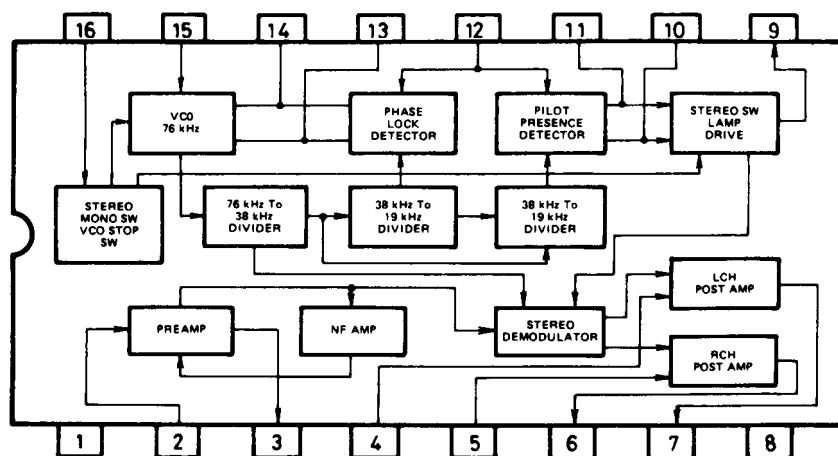
μ PD17103CX-528(Remote control decoder)

| Pin No. | Symbol | Terminal | Description |
|---------|-----------------|-------------|---|
| 1 | XIN | OSC | Connect to the 8.00MHz ceramic oscillator. |
| 2 | XOUT | | |
| 3 | RES | RESET | System reset terminal. Active low. |
| 4 | POD0 | REMOTE IN | Signal input terminal from preamp. for remote control. Active low. |
| 5 | POD1 | PHONO SENSE | Phono detection input terminal. Active low. |
| 6 | POD2 | POWER | Stand-by detection input terminal. During low input, only the POWER code is decoded. |
| 7 | POD3 | SYS IN | System code input terminal. |
| 8 | V _{DD} | +B | Power supply terminal. |
| 9 | POC0 | SYS OUT | Output at this terminal are the custom code (16bits) remote control code input to REMOTE IN, data code (8bits), and the serial code (12bits) that has been converted corresponding to the decoded data code (8bits) |
| 10 | POC1 | PHONO | When the player PLAY/REEJECT is input, a high pulse of 200ms is output. |
| 11 | POC2 | VOL DOWN | When the volume DOWN code is input, a high pulse of 120ms is output. |
| 12 | POC3 | VOL UP | When the volume UP code is input, a high pulse of 120ms is output. |
| 13 | POB0 | VOL IND | During the output of VOLUME UP/DOWN, a pulse ($\overline{\text{T}}\text{T}\text{T}\text{T}$ = 250ms) is output. (Not used.) |
| 14 | POB1 | RECEIVE | This is the display output for remote control reception. Output is low when decoded code is being recieved. |
| 15 | POB2 | STAND-BY | STAND-BY indication terminal. |
| 16 | V _{ss} | GND | Ground terminal. |

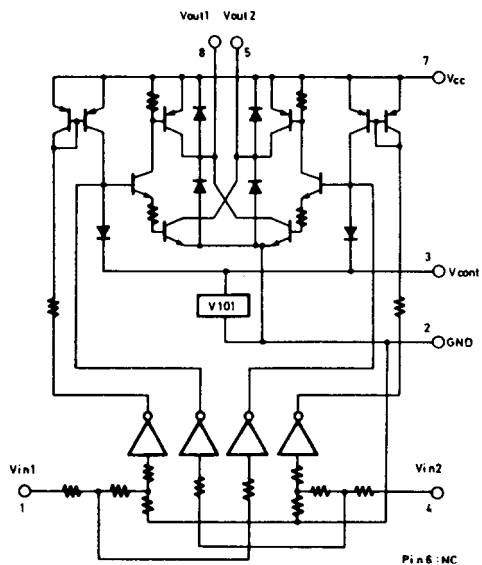
LA1266(FM IF and AM radio system)



AN7470(Stereo decoder)



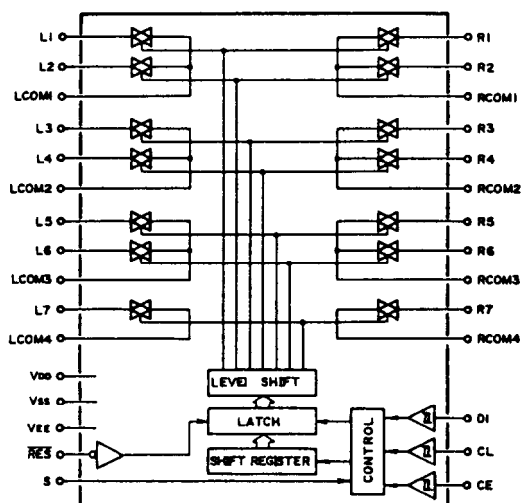
LB1630 (Motor driver)



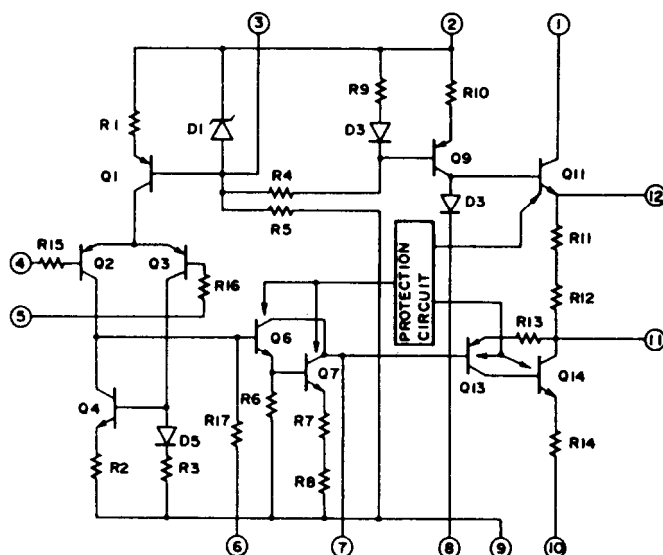
TRUTH TABLE

| IN 1 | IN 2 | OUT 1 | OUT 2 | MOTOR |
|------|------|-------|-------|---------|
| H | L | H | L | Normal |
| L | H | L | H | Reverse |
| H | H | OFF | OFF | Wait |
| L | L | OFF | OFF | Wait |

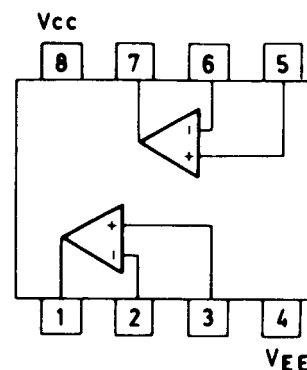
LC7823/LC7823N(Analog switch)



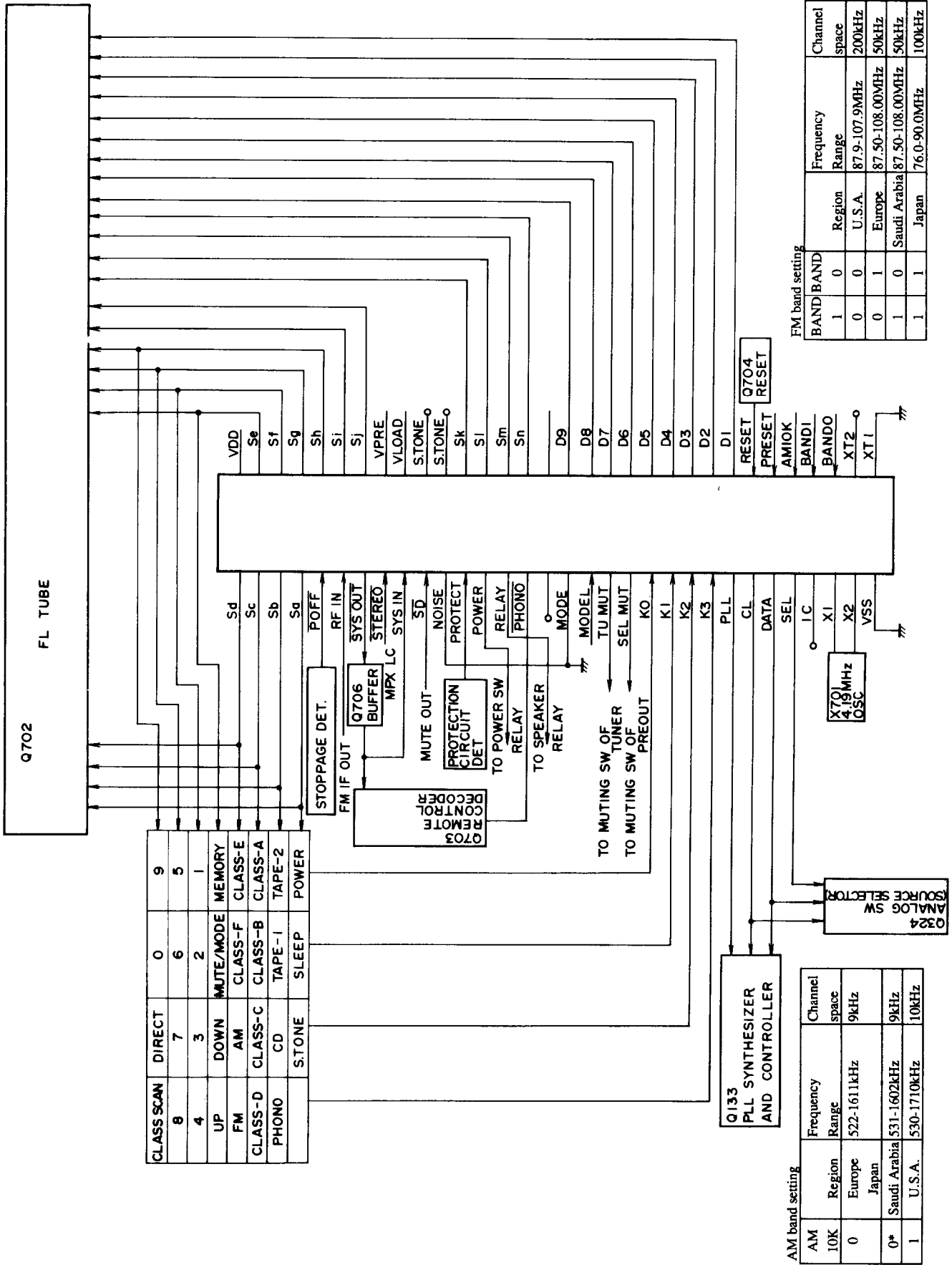
| Pin No. | Terminal | Description |
|---------|-------------|--|
| 1,30 | CD | On when the input selector is CD. |
| 2,29 | PHONO | On when the input selector is PHONO. |
| 3,28 | LCOM1,RCOM1 | Common terminal. |
| 4,27 | TAPE-1 REC | Off when the input selector is TAPE-1. |
| 5,26 | TAPE-1 PB | On when the input selector is TAPE-1. |
| 6,25 | LCOM2,RCOM2 | Common terminal. |
| 7,24 | TAPE-2 REC | Off when the input selector is TAPE-2. |
| 8,23 | TAPE-2 PB | On when the input selector is TAPE-2. |
| 9,22 | LCOM3,RCOM3 | Common terminal. |
| 10,21 | TUNER | On when the input selector is TUNER. |
| 11,20 | LCOM4,RCOM4 | Common terminal. |
| 12 | VEE | Negative power supply terminal.(-15V) |
| 13 | CE | Chip enable terminal.Connect to the terminal FUNC of the microprocessor. |
| 14 | DI | Serial data input terminal.Connect to the terminal DATA of the microprocessor. |
| 15 | CL | Serial clock terminal.Connect to the terminal CL of the microprocessor. |
| 16 | Vss | Ground terminal. |
| 17 | S | Select terminal. |
| 18 | RES | Reset terminal. |
| 19 | VDD | Power supply terminal.(+5V) |

 μ PC1225H(Power amplifier driver)

NJM4558D-X (Operation amplifier)



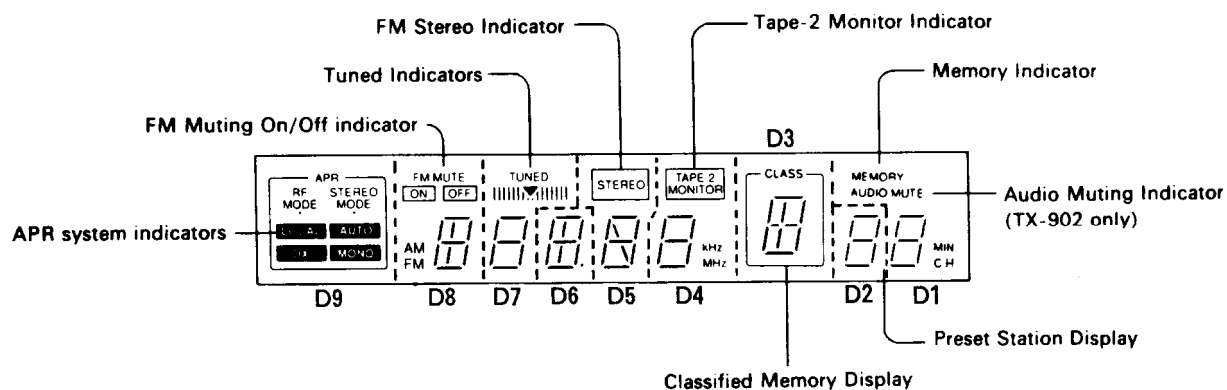
μPD75268CW-025(Microprocessor)



| Pin No. | Symbol | Description | | | | | | |
|---------|--------------------|---|-------|---------|---|-------|---|----|
| 1 | Sd | | | | | | | |
| 2 | Sc | Segment and key scan output terminals. | | | | | | |
| 3 | Sb | "H" when active. | | | | | | |
| 4 | Sa | | | | | | | |
| 5 | POFF | This is the input terminal for detection of the stoppage of electric current. "L" when the stoppage of electric current. | | | | | | |
| 6 | RF IN | RF mode input terminal. <table><tr><td>RF IN</td><td>RF MODE</td></tr><tr><td>L</td><td>LOCAL</td></tr><tr><td>H</td><td>DX</td></tr></table> | RF IN | RF MODE | L | LOCAL | H | DX |
| RF IN | RF MODE | | | | | | | |
| L | LOCAL | | | | | | | |
| H | DX | | | | | | | |
| 7 | SYS OUT/ SYS EN | System code output terminal. "L" when active. Initializing input terminal when the power turns on. | | | | | | |
| 8 | STEREO | Stereo broadcast detection input terminal. "L" when stereo broadcast. | | | | | | |
| 9 | SYS IN | System code input terminal. "H" when active. | | | | | | |
| 10 | SD | Broadcast detection input terminal. "L" when active. Control the stop of auto tuning and output TU MUT(#19). | | | | | | |
| 11 | NOISE | Noise detection input terminal. Not used. | | | | | | |
| 12 | PROTECT | Protection circuit operation detection input terminal. | | | | | | |
| 13 | POWER | Power control output terminal. | | | | | | |
| 14 | RELAY | Speaker relay control output terminal. | | | | | | |
| 15 | PHONO | Phono control output terminal. | | | | | | |
| 16 | | Not used. | | | | | | |
| 17 | MODE | Initializing input terminal for operation mode setting. | | | | | | |
| 18 | MODEL | Initializing input terminal for model setting of receiver. | | | | | | |
| 19 | TU MUT | Muting output terminal. "H" when active. | | | | | | |
| 20 | SEL MUT | Audio muting output terminal. Not used. | | | | | | |
| 21 | K0 | | | | | | | |
| 22 | K1 | Key scan input terminals. | | | | | | |
| 23 | K2 | "H" when active. | | | | | | |
| 24 | K3 | | | | | | | |
| 25 | PLL | Connect to the terminal CE of PLL IC (LM7001 Q133). | | | | | | |
| 26 | CL | Connect to the terminal CL of PLL IC and analogue switch. | | | | | | |
| 27 | DATA | Connect to the terminals DATA of PLL IC and analogue switch. | | | | | | |
| 28 | SEL | Analog switch control output terminal. Connect to the terminal SEL of analogue switch (LC7823 Q324). | | | | | | |

| Pin No. | Function | Description |
|---------|----------|--|
| 29 | IC | Internal connected. |
| 30 | X1 | Ceramic oscillator connection terminal for main system clock. |
| 31 | X2 | Connect to the 4.19MHz ceramic oscillator. |
| 32 | VSS | Ground terminal. |
| 33 | XT1 | Ceramic oscillator connection terminal for sub system clock. |
| 34 | XT2 | Not used. |
| 35 | BAND0 | Initializing input terminal for region setting of FM band. |
| 36 | BAND1 | |
| 37 | AM 10K | Initializing input terminal for region setting of AM band. |
| 38 | PRESET | Initializing input terminal for operation mode setting. |
| 39 | RESET | Reset input terminal. "L" when active. |
| 40 | D1 | |
| 41 | D2 | |
| 42 | D3 | |
| 43 | D4 | |
| 44 | D5 | |
| 45 | D6 | |
| 46 | D7 | |
| 47 | D8 | |
| 48 | D9 | |
| 49 | | Not used. |
| 50 | Sn | |
| 51 | Sm | Segment output terminals. "H" when active. |
| 52 | Sl | |
| 53 | Sk | |
| 54 | S.TONE | SELECTIVE TONE indication output terminal. Not used. |
| 55 | S.TONE | SELECTIVE TONE control output terminal. Not used. |
| 56 | VLOAD | Pull-down resistor connection terminal of FIP controller/driver. |
| 57 | VPRE | Power supply terminal of output buffer of FIP controller/driver. |
| 58 | Sj | |
| 59 | Si | |
| 60 | Sh | |
| 61 | Sg | Segment and key scan output terminals. |
| 62 | Sf | "H" when active. |
| 63 | Se | |
| 64 | VDD | Power supply terminal (+5V) |

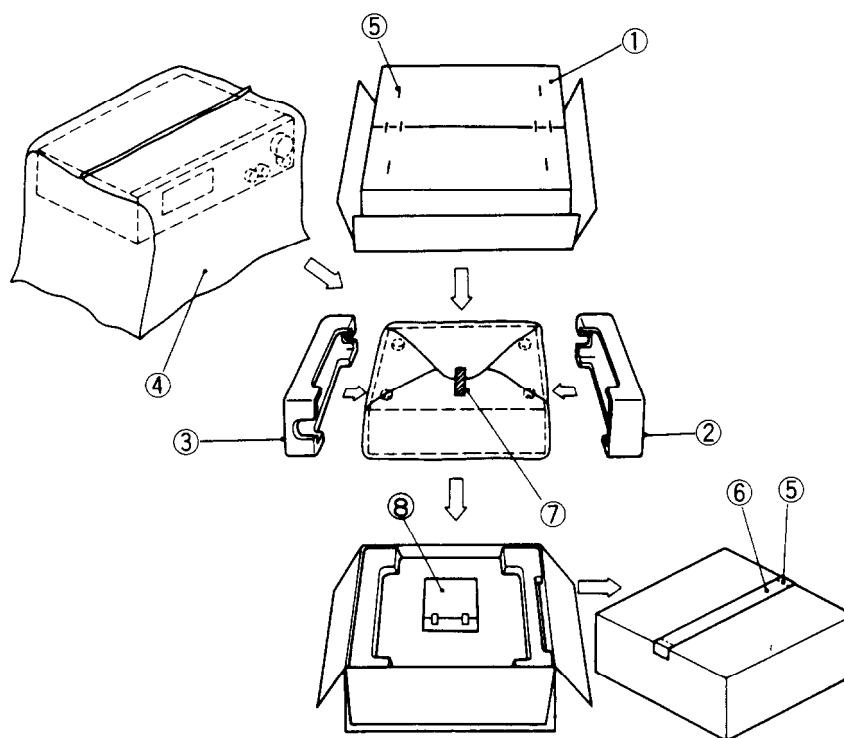
FIP9BTM8(Fluorescent tube)



| | | | | | | | | | | | | | | | | |
|--------------|----|------|------|----|------|------|------|------|------|------|------|------|----|----|------|--|
| Terminal No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Electrode | F | F | NP | 9G | NP | NP | NP | NP | NP | 9G | NP | 8G | NP | NP | 8G | P(n) |
| Terminal No. | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | Note: F:Filament G:Grid P:Anode NP:No pin |
| Electrode | 7G | 7G | P(m) | 6G | 6G | P(l) | P(k) | 5G | P(j) | P(i) | 4G | P(h) | NP | 4G | P(g) | |
| Terminal No. | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | |
| Electrode | 3G | P(f) | P(e) | 3G | P(a) | 2G | 2G | P(b) | 1G | P(c) | P(d) | 1G | NP | F | F | |

| | D9 | D8 | D7 | D6 | D5 | D4 | D3 | D2 | D1 |
|----|-------------|---------|-----------|----|--------|--------|-------|----|------------|
| Sa | APR | a | a | a | a | a | a | a | a |
| Sb | STEREO MODE | b | b | b | b | b | b | b | b |
| Sc | AUTO | c | c | c | c | c | c | c | c |
| Sd | MONO | d | d | d | d | d | d | d | d |
| Se | DX | e | e | e | e | e | e | e | e |
| Sf | LOCAL | f | f | f | f | f | f | f | f |
| Sg | RF MODE | g | g | g | g | g | g | g | g |
| Sh | | | | | h | | | | |
| Si | | i | | i | | | i | | |
| Sj | | FM MUTE | TUNED | | STEREO | TAPE-2 | CLASS | | MEMORY |
| Sk | | ON | ▼ (TUNED) | | | | k | | SLEEP |
| Sl | | OFF | | | | | | | AUDIO MUTE |
| Sm | | AM | | | | kHz | | | MIN |
| Sn | | FM | | | | MHz | | | CH |

PACKING VIEW



| REF. NO. | PART NO. | Description |
|----------|---------------------|-------------------------------------|
| 1 | 29052559Y | Master carton box <TX-930> |
| | 29052561Y | Master carton box <S> <TX-930> |
| | 29052563Y | Master carton box <TX-910> |
| | 29052565Y | Master carton box <S> <TX-910> |
| 2 | 29091440BY | Pad L |
| 3 | 29091441BY | Pad R |
| 4 | 29100034A | 850×650, Styrene bag |
| 5 | 282301 | Staple |
| 6 | 29110071 | PP tape |
| 7 | 261504 | Adhesive tape |
| 8 | Accessory bag ass'y | |
| | 29341795Y | Instruction manual <D> |
| | 29341797Y | Instruction manual <P/W/Q/C> |
| | 292111 | FM antenna <D/W> |
| | 292112 | FM antenna <P/Q> |
| | 29065462 | FM antenna adaptor <W/Q> |
| | 232140 | NMA-3057, AM loop antenna |
| | 25055040 | CV-K-2, Conversion plug <W> |
| | 3010054 | UM-3, Two batteries |
| | 24140223Y | RC-223S, Remote control transmitter |
| | 2010200 | Cord RI |
| | 29100097 | 350×250, Styrene bag |
| | 29365019A | Warranty card <N> |
| | 28358002J | Service station list <N> |
| | 29365024A | Warranty card <F> |
| | 29100107 | Styrene bag for warranty card <F> |

NOTE: :Black model only
 <S>:Silver model only
 <D>:120V model only
 <P>:230V model only
 <W>:Worldwide model only
 <Q>:240V model only
 <N>:U.S.A. model only
 <F>:French model only
 <C>:Canadian model only

ADJUSTMENT PROCEDURES

Preparation

1.Input

FM mono:1kHz,75kHz devi.,60dB/ μ V

FM stereo:1kHz,75kHz devi.,60dB/ μ V

Pilot signal 19kHz 7.5kHz devi.

AM:400Hz 30% mod.

2.Outputs

Connect the non-inductive type resistors of 8 ohms
to the speaker terminals A unless otherwise noted.

3.Standard Knob Position

VOLUME.....Maximum

BASS/TREBLE/BALANCE.....Center

MUTING/LOUDNESS.....Off

INPUT SELECTOR.....CD

SPEAKERS.....A

Confirming Operation

1.Protection circuit

a.Speaker relay

The speaker relay turns on after the power switch turned on for 5 minutes.

The speaker relay turns off immediately after the power switch turns off.

b. Over-voltage confirmation

The speaker relay is off immediately after DC voltage $\pm 6V$ is applied to the terminal CD.

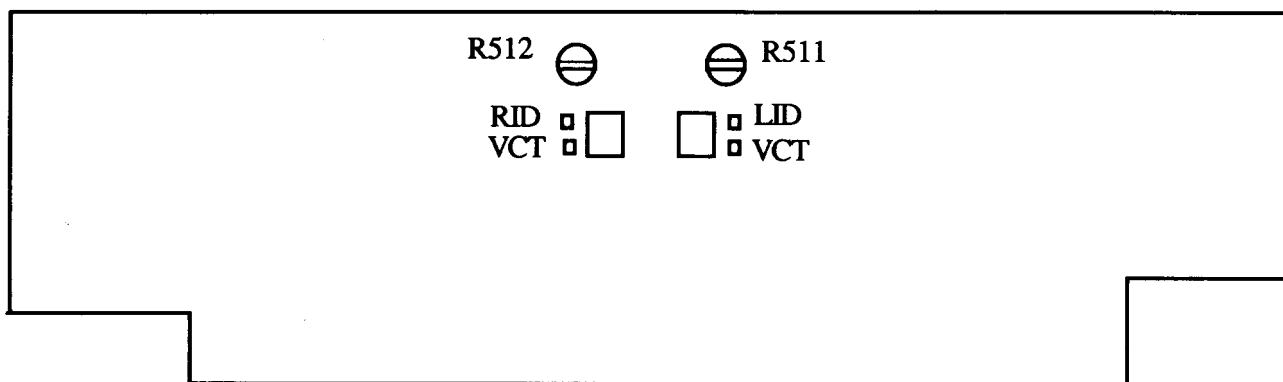
Amplifier section

Idling Current Adjustment

Connect the DC voltmeter to the terminals LID(RID) and CT on the power amplifier pc board.

Adjust the semi-fixed resistor R511(R512) so that the indication of voltmeter is $5 \pm 0.5mV$.

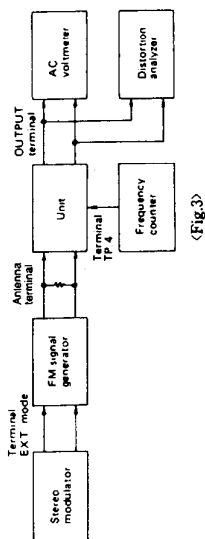
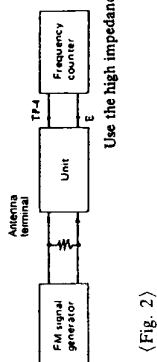
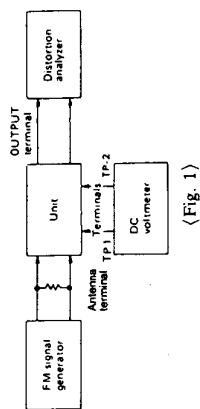
Note:():Right channel



POWER AMPLIFIER PC BOARD
SOLDERING SIDE

FM section

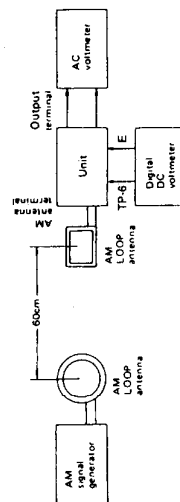
| Item | Step | Connection of instrument | FM SG output | Stereo modulator output | Tuned frequency | Output indicator | Adjustment point | Adjust for | Remarks |
|-----------------------|------|--------------------------|---|------------------------------|-----------------|---------------------|------------------|--------------|--|
| 1 F | 1 | Fig. 1 | 99.1MHz | — | 99.1MHz | DC voltmeter | L101 | 0 ± 20mV | Set the FM mode switch to MONO. Repeat the steps 1 and 2 until no further adjustment is necessary. |
| | 2 | | 1kHz/75kHz devi. 65dB(60dB) | — | 99.1MHz | Distortion analyzer | L102 | Minimum | |
| V C O | 1 | Fig. 2 | 99.1MHz | — | 99.1MHz | Frequency counter | R201 | 19kHz ± 10Hz | Set the FM mode switch to AUTO. |
| | 2 | Fig. 3 | 1kHz/75kHz devi. 65dB(60dB) | L+R 1kHz 67.5kHz devi. | 99.1MHz | Distortion analyzer | IF on front end | Minimum | |
| Tuned indicator level | 1 | Fig. 3 | 99.1MHz | — | 99.1MHz | TUNED indicator | R101 | Light on | |
| | 2 | | 1kHz/75kHz devi. 18.2dB(13dB) 11dB (other models) | — | 99.1MHz | TUNED indicator | R101 | Light off | |



AM section

| Step | AM SG output | Tuned Frequency | Output indicator | Adjustment point | Adjust for |
|------|---|--------------------------------|----------------------|-----------------------------|-------------|
| 1 | — | 522kHz (530kHz) (531kHz) | Digital DC voltmeter | OSC coil on RF block (L151) | 1.5V ± 0.1V |
| 2 | 603kHz/60dB/m (600kHz) 400Hz 30% mod. | 603kHz (600kHz) | A C voltmeter | RF coil on RF block (L151) | Maximum |
| 3 | 990kHz, 60dB/m 400Hz 30% mod. | 990kHz | A C voltmeter | L152 | Maximum |

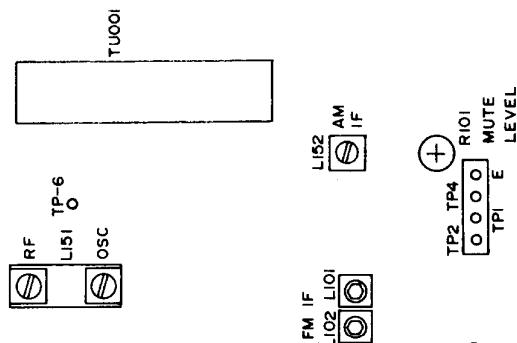
Note: () :120V model (10kHz step)
< > :Worldwide model



Reference specifications

Tuned voltage AM 530kHz (U.S.A. model) 1.5 ± 0.4V
522kHz (European model) 1.5 ± 0.4V
DC voltmeter to 1710kHz (U.S.A. model) 8.0 ± 0.5V
test point TP-6 161kHz (European model) 7.5 ± 0.5V
FM 87.9MHz (U.S.A. model) 2.0 ± 0.5V
87.5MHz (European model) 2.0 ± 0.5V
107.9MHz (U.S.A. model) 7.5 ± 0.5V
108.0MHz (European model) 7.5 ± 0.5V

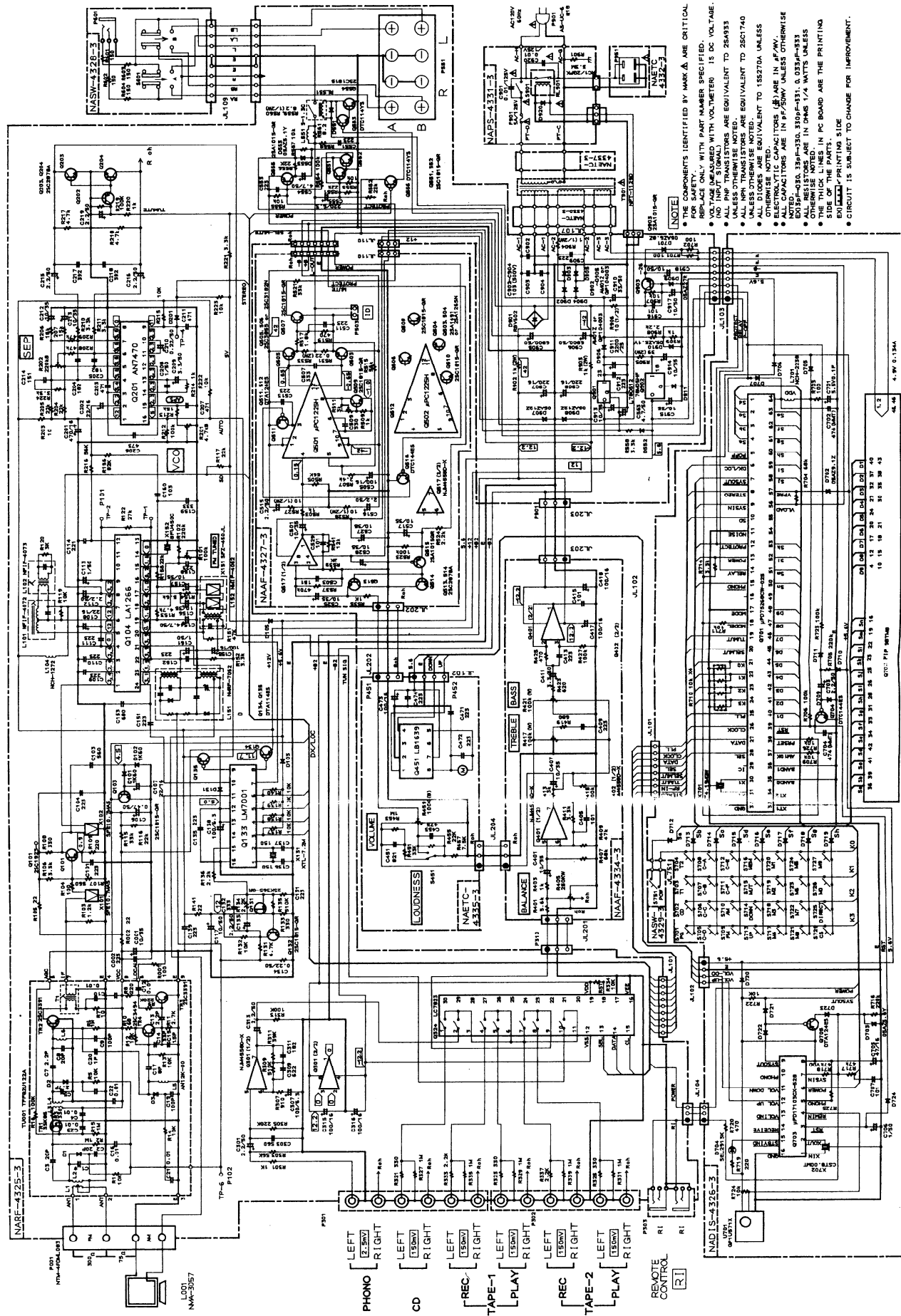
Muting width 35 ± 10kHz
Muting level (U.S.A. model) FM 14 ± 3dB
(European model) FM 12 ± 3dB
Auto stop level AM Less than 68dB/m
FM Less than 20dB μ



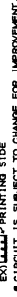
A | B | C | D | E | F | G

SCHEMATIC DIAGRAM

MODEL TX-930 (120V model)



4



G

F

E

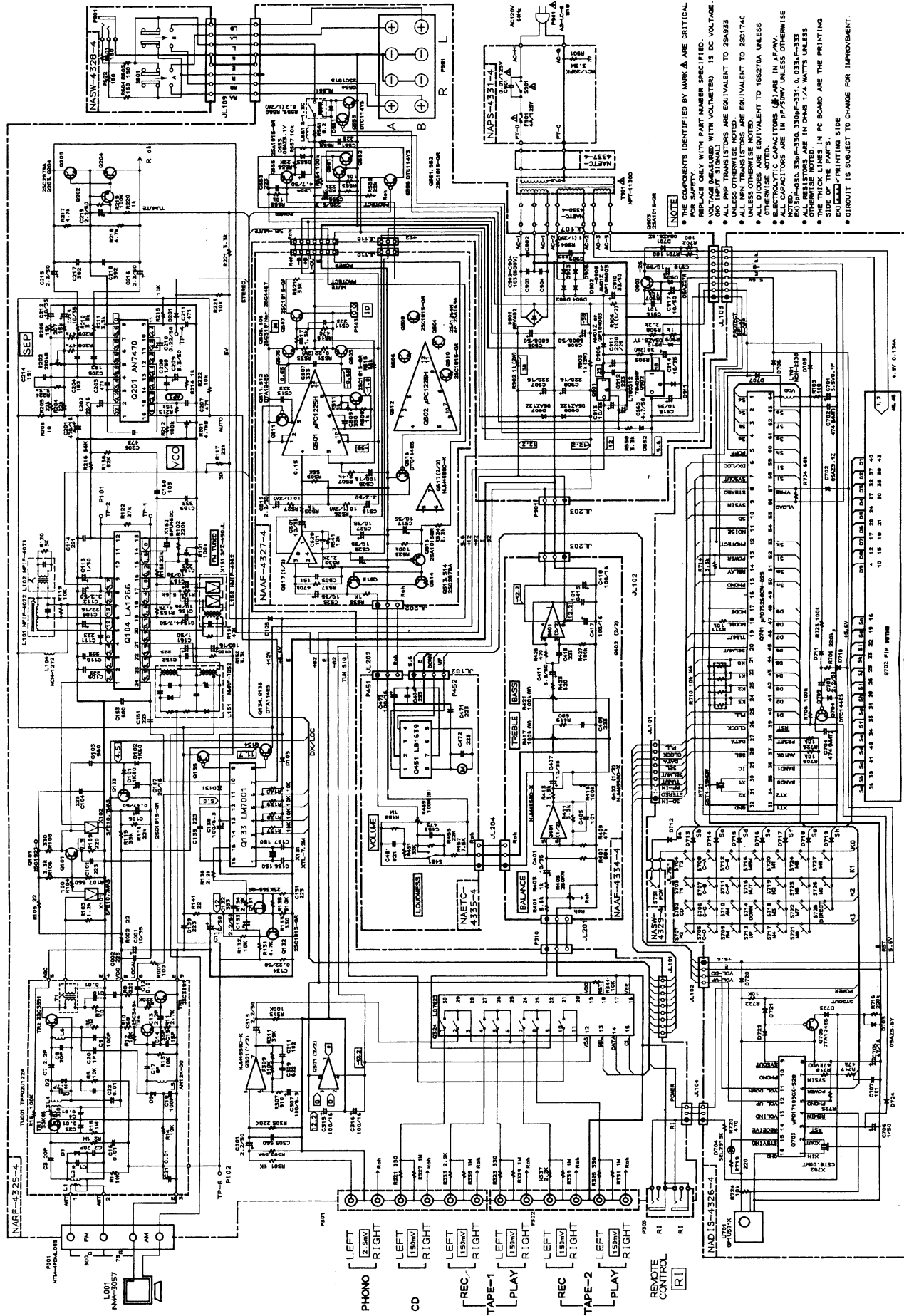
D

C

B

A

SCHEMATIC DIAGRAM MODEL TX-910 (120V model)



PRINTED CIRCUIT BOARD-PARTS LIST

MODEL TX-930

TUNER CIRCUIT PC BOARD (NARF-4325-3/3A/3B)

| CIRCUIT NO. | PART NO. | DESCRIPTION | CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|------------------------|--------------------|-------------|-----------------|------------------------------------|
| | Front end | | | Ceramic filters | |
| TU001 | 240084 | TFFG2U122A <D> | X101,X102 | 3010071 | SFE10.7MA5 <D> |
| | 240085 | TFFG4E122A <P/W/Q> | X101 | 3010081 | SFE10.7MS3GYA <P/W/Q> |
| | ICs | | X102 | 3010137 | SFE10.7MMK <P/W/Q> |
| Q104 | 22240039 | LA1266 | X151 | 3010123 | SFZ450JL |
| Q133 | 22240090 | LM7001 | X152 | 3010076 | BFU450C |
| Q201 | 22240242 | AN7470 | | Capacitors | |
| Q301 | 222502 | NJM4558D-X | C001 | 354761009 | 10 μ F,35V,Elect. |
| Q324 | 22240158 or | LC7823 or | C106 | 354784799 | 0.47 μ F,50V,Elect. |
| | 22240339 | LC7823N | C107,C108 | 354742209 | 22 μ F,16V,Elect. |
| Q901 | 222780126 | L78OS12 | C112 | 354780229 | 2.2 μ F,50V,Elect. |
| Q902 | 222780055 | 78M05HF | C113,C161 | 354780109 | 1 μ F,50V,Elect. |
| | Transistors | | C117 | 354781009 | 10 μ F,50V,Elect. |
| Q101 | 2211723 | 2SC1923-O | C131 | 374722234 | 0.022 μ F \pm 5%,50V,Plastic |
| Q102 | 2210746 | 2SC945A-P <P/W/Q> | C132 | 374723334 | 0.033 μ F \pm 5%,50V,Plastic |
| Q103,Q132 | 2211255 | 2SC1815-GR | C133 | 354780229 | 2.2 μ F,50V,Elect. |
| Q131 | 2212445 | 2SK365-GR | C134 | 354782299 | 0.22 μ F,50V,Elect. |
| Q134,Q135 | 2213510 | DTA114ES | C138 | 354721019 | 100 μ F,6.3V,Elect. |
| Q202 | 2211455 | 2SA1015-GR | C154 | 354780479 | 4.7 μ F,50V,Elect. |
| Q203,Q204 | 2212285 | 2SC2878-A | C155 | 354741019 | 100 μ F,16V,Elect. |
| Q551,Q552 | 2211255 | 2SC1815-GR | C156,C157 | 354761009 | 10 μ F,35V,Elect. |
| Q553,Q556 | 221281 | DTC114YS | C159 | 374723334 | 0.033 μ F \pm 5%,50V,Plastic |
| Q554 | 2211255 | 2SC1815-GR | C160 | 374721034 | 0.01 μ F \pm 5%,50V,Plastic |
| Q555,Q903 | 2211455 | 2SA1015-GR | C201 | 354744719 | 470 μ F,16V,Elect. |
| | Diodes | | C202 | 354742209 | 22 μ F,16V,Elect. |
| D101,D102 | 223132 | 1K60 | C204,C205 | 374721824 | 1800pF \pm 5%,50V,Plastic <D> |
| D103,D105 | 223205 or | 1SS270A or | | 374721224 | 1200pF \pm 5%,50V,Plastic <P/Q> |
| D131,D201 | 223163 | 1SS133 | | 374721524 | 1500pF \pm 5%,50V,Plastic <W> |
| D551,D552 | 223205 or | 1SS270A or | C206 | 374724734 | 0.047 μ F \pm 5%,50V,Plastic |
| D911 | 223163 | 1SS133 | C207 | 370134714 | 470pF \pm 5%,100V,Plastic |
| D553,D910 | 224150512 | 05AZ5.1Y | C208 | 354780109 | 1 μ F,50V,Elect. |
| D701 | 224150683 | 05AZ6.8Z | C209 | 354780339 | 3.3 μ F,50V,Elect. |
| D901 | 22380038 | RBV602 | C210 | 354782299 | 0.22 μ F,50V,Elect. |
| D902-D906 | 22380035 or | GP104003 or | C212,C213 | 354761009 | 10 μ F,35V,Elect. |
| | 22380046 | AM01Z | C215,C216 | 354780229 | 2.2 μ F,50V,Elect. |
| D907,D908 | 224151203 | 05AZ12Z | C217,C218 | 374723924 | 3900pF \pm 5%,50V,Plastic |
| D909 | 224152704 | 05AZ27R | C219 | 354780229 | 2.2 μ F,50V,Elect. |
| | Coils and Transformers | | C301,C302 | 354780229 | 2.2 μ F,50V,Elect. |
| L101 | 233401 | NFIF-4072 | C307,C308 | 354721019 | 100 μ F,6.3V,Elect. |
| L102 | 233402 | NFIF-4073 | C309,C310 | 374726224 | 6200pF \pm 5%,50V,Plastic |
| L103 | 233383 | NMC-6070 <P/W/Q> | C311,C312 | 374721824 | 1800pF \pm 5%,50V,Plastic |
| L104 | 233409M022 | NCH-1272 | C313,C314 | 354780229 | 2.2 μ F,50V,Elect. |
| L151 | 232152 | NMRF-7052,RF block | C315,C316 | 354741019 | 100 μ F,16V,Elect. |
| L152 | 232139 | NMIF-4062 | C551,C552 | 374724734 | 0.047 μ F \pm 5%,50V,Plastic |
| L201,L202 | 233294 | NMC-5040 <P/W/Q> | C554,C563 | 354780479 | 4.7 μ F,50V,Elect. |
| L551,L552 | 231176 | S-1.3C | C555 | 354722219 | 220 μ F,6.3V,Elect. |
| | Resonator | | C905,C906 | 3504207 | 6800 μ F,50V,Elect. |
| X103 | 3010158 or | XTL-7.2M or | C907,C908 | 354742219 | 220 μ F,16V,Elect. |
| | 3010141 | XTL-7.2M,Crystal | C910 | 354783309 | 33 μ F,50V,Elect. |
| | | | C911 | 354752229 | 2200 μ F,25V,Elect. |
| | | | C913-C915 | 354761009 | 10 μ F,35V,Elect. |
| | | | C917,C918 | 354781009 | 10 μ F,50V,Elect. |

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|-----------------------|--|
| | Resistors | |
| R101 | 5210221 or 5210070 | N06HR100KBD, Trim |
| R201 | 5210216 or 5210062 | N06HR5KBD or N06HR4.7KBD,Trim |
| R559,R560 | 452530824 | 8.2 ohm $\pm 5\%$, 1/2W, Metal |
| R902,R903 | 441721024 | 1 kohm $\pm 5\%$, 2W, Metal |
| R904 | 452530104 | 1 ohm $\pm 5\%$, 1/2W, Metal |
| R905 | 441723904 | 39 ohm $\pm 5\%$, 2W, Metal |
| R906 | 441721004 | 10 ohm $\pm 5\%$, 1/2W, Metal |
| | Terminals | |
| P001 | 25060157 25060117 | NTM-4PDML083, Antenna <D> NTM-2PDML051, Antenna <P/W/Q> |
| P301,P302 | 25045323 | NPJ-6PDBL180 |
| P303 | 25045172 | HSJ1003-01-020 |
| P551 | 25060158 | NTM-8PDML084, Speaker |
| | Relay | |
| RL551 | 25065339 | NRL-2P5A-DC24-046 |
| | Sockets | |
| P310,P901 | 25050267 | NSCT-3P95 |
| | Radiators | |
| R1 | 27160176 | RAD56 |
| R2 | 27160145 | RAD51 |
| R3 | 27160166 | |

DISPLAY CIRCUIT PC BOARD (NADIS-4326-3/3A/3B)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|-----------------------------|-------------------------------------|
| | Remote control sensor | |
| U701 | 24130007 | GP1U571X |
| | ICs | |
| Q701 | 22240406 | μ PD75268CW-025 |
| Q703 | 22240376 | μ PD17103CX-528 |
| | FL tube | |
| Q702 | 212093 | FIP9BTM8 |
| | Transistors | |
| Q704 | 221282 | DTC144ES |
| Q705 | 2212600 | DTA124ES |
| | Diodes | |
| D702 | 224150913 | 05AZ9.1Z |
| D703 | 224150562 | 05AZ5.6Y |
| D704 | 225142 | SEL2913K,LED |
| D705-D707 | 223163 or | 1SS133 or |
| D709-D724 | 223205 | 1SS270A |
| | Resonators | |
| X701 | 3010163 | CST4.19MGW, Ceramic |
| X702 | 3010154 or 3010190 | CST8.00MT or CST8.00HSW, Ceramic |
| | Coil | |
| L701 | 233400M220 or 233409K220 | NCH-2238 or NCH-1284 |

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|-----------------------|---------------------------------------|
| | Capacitors | |
| C701 | 3000057 or 3000068 | 0.1F, 5.5V or 0.047F, 5.5V, Super |
| C702,C704 | 375524744 | 0.47 μ F $\pm 5\%$, 50V, Plastic |
| C703 | 353780229 | 2.2 μ F, 50V, Elect. |
| C705 | 353744709 | 47 μ F, 16V, Elect. |
| C706 | 353780109 | 1 μ F, 50V, Elect. |
| | Resistor | |
| R710 | 49163103404 | 10 kohm $\times 4$, 1/10W, Array |
| | Switches | |
| S701-S727 | 25035548 | NPS-111-S510 |
| S728 | 25065286 | NSS22112 <W> |
| S729 | 25035548 | NPS-111-S510 |
| | Holders | |
| | 27190810 | FL |
| | 27190811 | LED |

POWER AMPLIFIER CIRCUIT PC BOARD (NAAF-4327-3/3A)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|---|---|
| | ICs | |
| Q501,Q502 | 22240108 | μ PC1225H |
| Q517 | 222502 | NJM4558D-X |
| | Transistors | |
| Q503,Q504 | 2201693, 2201694, 2201696, 2202282 or 2202283 | * 2SA1491-O, * 2SA1491-Y, * 2SA1491-P, * 2SA1265N-R or * 2SA1265N-O |
| Q505,Q506 | 2201703, 2201704, 2201706, 2202292 or 2202293 | * 2SC3855-O, * 2SC3855-Y, * 2SC3855-P, * 2SC3812N-R or * 2SC3812N-O |
| Q507-Q510 | 2211255 | 2SC1815-GR |
| Q511,Q512 | 2212600 | DTA124ES |
| Q513,Q514 | 2212285 | 2SC2878-A |
| Q515 | 2211455 | 2SA1015-GR |
| Q516 | 221282 | DTC144ES |
| | Capacitors | |
| C501,C502 | 354761009 | 10 μ F, 35V, Elect. |
| C505,C506 | 354741019 | 100 μ F, 16V, Elect. |
| C507,C508 | 374723334 | 0.033 μ F $\pm 5\%$, 50V, Plastic |
| C515,C516 | 354780229 | 2.2 μ F, 50V, Elect. |
| C517 | 354761009 | 10 μ F, 35V, Elect. |
| C525-C528 | 354761009 | 10 μ F, 35V, Elect. |
| | Resistors | |
| R511,R512 | 5215061 | N08HR3KBC, Trim |
| R526,R527 | 442521004 | 10 ohm, 1/2W, Metal oxide film |
| R531-R534 | 4500005 | BPR2FK-0.22, Metal plate |
| | Plugs | |
| P503,P504 | 25055495 | NPLG-2P470 |

HEADPHONE TERMINAL PC BOARD (NASW-4328-3/3A)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------|-------------------------------|
| S601 | 25035517 | NPS-222-L479,Push switch |
| P601 | 25045255 | YKB21-5009,Headphone terminal |

POWER SWITCH PC BOARD (NASW-4329-3)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------|---------------------------|
| S751 | 25035548 | NPS-111-S510,Power switch |

POWER SUPPLY CIRCUIT PC BOARD (NAPS-4331-3/3A/3B/3C)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|---------------------|--|
| D920 | 223163 or 223205 | 1SS133 or 1SS270A,Diode |
| C901,C920 | 3500065A | △ DE7150FZ103PAC400V/125V, Capacitor IS |
| C901A | 27301216 | △ Cover for C901 <P/W/Q> |
| R901 | 431523355 | △ 3.3 Mohm,1/2W,Solid resistor <D> |
| S901 | 25035550 | △ NPS-111-L512P,Power switch |
| F901 | 252050 | △ 5A(ST-6),Primary fuse <D/W> |
| F901a | 250113 | △ SN5051,Fuseholders <D/W> |
| F902 | 252075 | △ 2.5A-SE-EAK,Primary fuse <P/W/Q> |
| F902a | 25050065 | △ YSH403T,Fuseholders <P/W/Q> |
| RL901 | 25065269 | △ NRL-1P5ADC12-36,Relay <D> |
| | 25065248 | △ NRL-1P15ADC12-29,Relay <P/W/Q> |
| P902 | 25050267 | NSCT-3P95,Socket |

AC OUTLET TERMINAL PC BOARD (NAETC-4332-3)

(120 V model only)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------|------------------------|
| P951 | 25050409 | △ NSCT-4P234,AC outlet |

AC OUTLET TERMINAL PC BOARD (NAETC-4333-3/3A)

(230 V and Worldwide models only)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------|----------------------------|
| P952 | 25050410 | △ NSCT-2P235,AC outlet |
| F951 | 252047 | △ 2A-SE-EAK,Fuse <P> |
| F951a | 25050065 | △ YSH-403T,Fuseholders <P> |

TONE CONTROL CIRCUIT PC BOARD (NAAF-4334-3/3A)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|------------|---------------------------------------|
| | IC | |
| Q401,Q402 | 222502 | NJM4558D-X |
| | Capacitors | |
| C401,C402 | 354761009 | 10 μ F,35V,Elect. |
| C407,C408 | 354761009 | 10 μ F,35V,Elect. |
| C409,C410 | 374722234 | 0.022 μ F \pm 5%,50V,Plastic |
| C411,C412 | 354780339 | 3.3 μ F,50V,Elect. |
| C413,C414 | 374722234 | 0.022 μ F \pm 5%,50V,Plastic |
| C417,C418 | 354741019 | 100 μ F,16V,Elect. |
| | Resistors | |
| R405,R406 | 5104225 | N11RGLC250KWT22Z, Balance,variable |
| R417,R418 | 5104230 | N14RLC100KWT22Z,Treble,variable |
| R421,R422 | 5104230 | N14RLC100KWT22Z,Bass,variable |

VOLUME CONTROL CIRCUIT PC BOARD (NAETC-4335-3)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|-----------|---|
| Q451 | 22240322 | LB1639,IC |
| C453,C454 | 374724734 | 0.047 μ F \pm 5%,50V,Plastic capacitor |
| C473 | 354741019 | 100 μ F,16V,Elect. capacitor |
| R459,R460 | 5104243 | N16RGM100KBTP25F,Volume, variable resistor |
| S451 | 25035609 | NPS-122-L571,Loudness switch |
| P451 | 25050267 | NSCT-3P95,Socket |
| P452 | 25050268 | NSCT-4P96,Socket |

VOLTAGE SELECTOR SWITCH PC BOARD (NASW-4338-3)

(Worldwide model only)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------|--------------------------------------|
| S902 | 25065287 | △ NSS-22113P,Voltage selector switch |

NOTE: <D>:120 V model only
 <P>:230 V model only
 <W>:Worldwide model only
 <Q>:240 V model only

CAUTION:Replacement for transistor of mark *,if necessary,
 must be made from the same beta group (H \approx) as
 the original type.

NOTE: THE COMPONENTS IDENTIFIED BY MARK △
 ARE CRITICAL FOR RISK OF FIRE AND
 ELECTRIC SHOCK. REPLACE ONLY WITH
 PART NUMBER SPECIFIED.

PRINTED CIRCUIT BOARD-PARTS LIST

MODEL TX-910

TUNER CIRCUIT PC BOARD (NARF-4325-4/4A/4B)

| CIRCUIT NO. | PART NO. | DESCRIPTION | CIRCUIT NO. | PART NO. | DESCRIPTION |
|---|--|--|---|--|---|
| | Front end | | | Ceramic filters | |
| TU001 Q104 Q133 Q201 Q301 Q324 Q901 Q902 Q101 Q102 Q103,Q132 Q131 Q134,Q135 Q202 Q203,Q204 Q551,Q552 Q553,Q556 Q554 Q555,Q903 | 240084 240085 ICs 22240039 22240090 22240242 222502 22240158 or 22240339 222780126 222780055 2211723 2210746 2211255 2212445 2213510 2211455 2212285 2211255 221281 2211255 2211455 | TFFG2U122A <D> TFFG4E122A <P/W/Q> LA1266 LM7001 AN7470 NJM4558D-X LC7823 or LC7823N L78OS12 78M05HF 2SC1923-O 2SC945A-P <P/W/Q> 2SC1815-GR 2SK365-GR DTA114ES 2SA1015-GR 2SC2878-A 2SC1815-GR DTC114YS 2SC1815-GR 2SA1015-GR | X101,X102 X101 X102 X151 X152 C001 C106 C107,C108 C112 C113,C161 C117 C131 C132 C133 C134 C138 C154 C155 C156,C157 C159 C160 C201 C202 C204,C205 | 3010071 3010081 3010137 3010123 3010076 354761009 354784799 354742209 354780229 354780109 354781009 374722234 374723334 354780229 354782299 354721019 354780479 354741019 354761009 374723334 374721034 354744719 354742209 374721824 | SFE10.7MA5 <D> SFE10.7MS3GYA <P/W/Q> SFE10.7MMK <P/W/Q> SFZ450JL BFU450C 10 μ F,35V,Elect. 0.47 μ F,50V,Elect. 22 μ F,16V,Elect. 2.2 μ F,50V,Elect. 1 μ F,50V,Elect. 10 μ F,50V,Elect. 0.022 μ F \pm 5%,50V,Plastic 0.033 μ F \pm 5%,50V,Plastic 2.2 μ F,50V,Elect. 0.22 μ F,50V,Elect. 100 μ F,6.3V,Elect. 4.7 μ F,50V,Elect. 100 μ F,16V,Elect. 10 μ F,35V,Elect. 0.033 μ F \pm 5%,50V,Plastic 0.01 μ F \pm 5%,50V,Plastic 470 μ F,16V,Elect. 22 μ F,16V,Elect. 1800pF \pm 5%,50V,Plastic <D> 1200pF \pm 5%,50V,Plastic <P/Q> 1500pF \pm 5%,50V,Plastic <W> 0.047 μ F \pm 5%,50V,Plastic 470pF \pm 5%,100V,Plastic 1 μ F,50V,Elect. 3.3 μ F,50V,Elect. 0.22 μ F,50V,Elect. 10 μ F,35V,Elect. 2.2 μ F,50V,Elect. 3900pF \pm 5%,50V,Plastic 2.2 μ F,50V,Elect. 2.2 μ F,50V,Elect. 100 μ F,6.3V,Elect. 6200pF \pm 5%,50V,Plastic 1800pF \pm 5%,50V,Plastic 2.2 μ F,50V,Elect. 100 μ F,16V,Elect. 0.047 μ F \pm 5%,50V,Plastic 4.7 μ F,50V,Elect. 220 μ F,6.3V,Elect. 6800 μ F,50V,Elect. 220 μ F,16V,Elect. 33 μ F,50V,Elect. 2200 μ F,25V,Elect. 10 μ F,35V,Elect. 10 μ F,50V,Elect. |
| | Diodes | | | | |
| D101,D102 D103,D105 D131,D201 D551,D552 D911 D553,D910 D701 D901 D902-D906 D907,D908 D909 | 223132 223205 or 223163 223205 or 223163 224150512 224150683 22380022 22380035 or 22380046 224151203 224152704 | 1K60 1SS270A or 1SS133 1SS270A or 1SS133 05AZ5.1Y 05AZ6.8Z RBV402 GP104003 or AM01Z 05AZ12Z 05AZ27R | C206 C207 C208 C209 C210 C212,C213 C215,C216 C217,C218 C219 C301,C302 C307,C308 C309,C310 C311,C312 C313,C314 C315,C316 C551,C552 C554,C563 C555 C905,C906 C907,C908 C910 C911 C913-C915 C917,C918 | 374721224 374721524 374724734 370134714 354780109 354780339 354782299 354761009 354780229 374723924 354780229 354780229 354721019 374726224 374721824 354780229 354741019 374724734 354780479 354722219 3504207 354742219 354783309 354752229 354761009 354781009 | 1200pF \pm 5%,50V,Plastic <P/Q> 1500pF \pm 5%,50V,Plastic <W> 0.047 μ F \pm 5%,50V,Plastic 470pF \pm 5%,100V,Plastic 1 μ F,50V,Elect. 3.3 μ F,50V,Elect. 0.22 μ F,50V,Elect. 10 μ F,35V,Elect. 2.2 μ F,50V,Elect. 3900pF \pm 5%,50V,Plastic 2.2 μ F,50V,Elect. 2.2 μ F,50V,Elect. 100 μ F,6.3V,Elect. 6200pF \pm 5%,50V,Plastic 1800pF \pm 5%,50V,Plastic 2.2 μ F,50V,Elect. 100 μ F,16V,Elect. 0.047 μ F \pm 5%,50V,Plastic 4.7 μ F,50V,Elect. 220 μ F,6.3V,Elect. 6800 μ F,50V,Elect. 220 μ F,16V,Elect. 33 μ F,50V,Elect. 2200 μ F,25V,Elect. 10 μ F,35V,Elect. 10 μ F,50V,Elect. |
| | Coils and Transformers | | | | |
| L101 L102 L103 L104 L151 L152 L201,L202 L551,L552 | 233401 233402 233383 233409M022 232152 232139 233294 231176 | NFIF-4072 NFIF-4073 NMC-6070 <P/W/Q> NCH-1272 NMRF-7052,RF block NMIF-4062 NMC-5040 <P/W/Q> S-1.3C | | | |
| | Resonator | | | | |
| X103 | 3010158 or 3010141 | XTL-7.2M or XTL-7.2M,Crystal | | | |

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|-----------------------|--|
| | Resistors | |
| R101 | 5210221 or 5210070 | N06HR100KBD, Trim |
| R201 | 5210216 or 5210062 | N06HR5KBD or N06HR4.7KBD,Trim |
| R559,R560 | 452530824 | 8.2 ohm \pm 5%,1/2W,Metal |
| R902,R903 | 441729114 | 910 ohm \pm 5%,2W,Metal |
| R904 | 452530104 | 1 ohm \pm 5%,1/2W,Metal |
| R905 | 441723904 | 39 ohm \pm 5%,2W,Metal |
| R906 | 442531004 | 10 ohm \pm 5%,1/2W,Metal |
| | Terminals | |
| P001 | 25060157 25060117 | NTM-4PDML083,Antenna <D> NTM-2PDML051,Antenna <P/W/Q> |
| P301,P302 | 25045323 | NPJ-6PDBL180 |
| P303 | 25045172 | HSJ1003-01-020 |
| P551 | 25060158 | NTM-8PDML084,Speaker |
| | Relay | |
| RL551 | 25065339 | NRL-2P5A-DC24-046 |
| | Sockets | |
| P310,P901 | 25050267 | NSCT-3P95 |
| | Radiators | |
| R1 | 27160176 | RAD56 |
| R2 | 27160145 | RAD51 |
| R3 | 27160166 | |

DISPLAY CIRCUIT PC BOARD (NADIS-4326-4/4A/4B)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|-----------------------------|------------------------------------|
| | Remote control sensor | |
| U701 | 24130007 | GP1U571X |
| | ICs | |
| Q701 | 22240406 | μ PD75268CW-025 |
| Q703 | 22240376 | μ PD17103CX-528 |
| | FL tube | |
| Q702 | 212093 | FIP9BTM8 |
| | Transistors | |
| Q704 | 221282 | DTC144ES |
| Q705 | 2212600 | DTA124ES |
| | Diodes | |
| D702 | 224150913 | 05AZ9.1Z |
| D703 | 224150562 | 05AZ5.6Y |
| D704 | 225142 | SEL2913K,LED |
| D705-D707 | 223163 or | 1SS133 or |
| D709-D724 | 223205 | 1SS270A |
| | Resonators | |
| X701 | 3010163 | CST4.19MGW,Ceramic |
| X702 | 3010154 or 3010190 | CST8.00MT or CST8.00HSW,Ceramic |
| | Coil | |
| L701 | 233400M220 or 233409K220 | NCH-2238 or NCH-1284 |

CAUTION:Replacement for transistor of mark *,if necessary,
must be made from the same beta group (H Æ) as
the original type.

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|-----------------------|-----------------------------------|
| | Capacitors | |
| C701 | 3000057 or 3000068 | 0.1F,5.5V or 0.047F,5.5V,Super |
| C702,C704 | 375524744 | 0.47 μ F \pm 5%,50V,Plastic |
| C703 | 353780229 | 2.2 μ F,50V,Elect. |
| C705 | 353744709 | 47 μ F,16V,Elect. |
| C706 | 353780109 | 1 μ F,50V,Elect. |
| | Resistor | |
| R710 | 49163103404 | 10 kohm \times 4,1/10W,Array |
| | Switches | |
| S701-S727 | 25035548 | NPS-111-S510 |
| S728 | 25065286 | NSS22112 <W> |
| | Holders | |
| | 27190810 | FL |
| | 27190811 | LED |

POWER AMPLIFIER CIRCUIT PC BOARD (NAAF-4327-4/4A)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|---|---|
| | ICs | |
| Q501,Q502 | 22240108 | μ PC1225H |
| Q517 | 222502 | NJM4558D-X |
| | Transistors | |
| Q503,Q504 | 2202243, 2202244, 2202246, 2202492 or 2202493 | * 2SA1694-O, * 2SA1694-Y, * 2SA1694-P, * 2SA1264N-R or * 2SA1264N-O |
| Q505,Q506 | 2202253, 2202254, 2202256, 2202502 or 2202503 | * 2SC4467-O, * 2SC4467-Y, * 2SC4467-P, * 2SC3181N-R or * 2SC3181N-O |
| Q507-Q510 | 2211255 | 2SC1815-GR |
| Q511,Q512 | 2212600 | DTA124ES |
| Q513,Q514 | 2212285 | 2SC2878-A |
| Q515 | 2211455 | 2SA1015-GR |
| Q516 | 221282 | DTC144ES |
| | Capacitors | |
| C501,C502 | 354761009 | 10 μ F,35V,Elect. |
| C505,C506 | 354741019 | 100 μ F,16V,Elect. |
| C507,C508 | 374723334 | 0.033 μ F \pm 5%,50V,Plastic |
| C515,C516 | 354780229 | 2.2 μ F,50V,Elect. |
| C517 | 354761009 | 10 μ F,35V,Elect. |
| C525-C528 | 354761009 | 10 μ F,35V,Elect. |
| | Resistors | |
| R511,R512 | 5215061 | N08HR3KBC,Trim |
| R526,R527 | 442521004 | 10 ohm,1/2W,Metal oxide film |
| R531-R534 | 4500005 | BPR2FK-0.22,Metal plate |
| | Plugs | |
| P503,P504 | 25055495 | NPLG-2P470 |

NOTE: <D>:120 V model only

<P>:230 V model only

<W>:Worldwide model only

<Q>:240 V model only

HEADPHONE TERMINAL PC BOARD (NASW-4328-4/4A)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------|-------------------------------|
| S601 | 25035517 | NPS-222-L479,Push switch |
| P601 | 25045255 | YKB21-5009,Headphone terminal |

POWER SWITCH PC BOARD (NASW-4329-4)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------|---------------------------|
| S751 | 25035548 | NPS-111-S510,Power switch |

POWER SUPPLY CIRCUIT PC BOARD (NAPS-4331-4/4A/4B/4C)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|-----------|--|
| C901 | 3500065A | Δ DE7150FZ103PAC400V/125V, Capacitor IS |
| C901A | 27301216 | Δ Cover for C901 <P/w/Q> |
| R901 | 431523355 | Δ 3.3 Mohm,1/2W,Solid resistor <D> |
| S901 | 25035550 | Δ NPS-111-L512P,Power switch |
| F901 | 252049 | Δ 4A(ST-6),Primary fuse <D/W> |
| F901a | 250113 | Δ SN5051,Fuseholders <D/W> |
| F902 | 252073 | Δ 1.6A-SE-EAK,Primary fuse <P/W/Q> |
| F902a | 25050065 | Δ YSH403T,Fuseholders <P/W/Q> |

TONE CONTROL CIRCUIT PC BOARD (NAAF-4334-4/4A)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|------------|------------------------------------|
| | ICs | |
| Q401,Q402 | 222502 | NJM4558D-X |
| | Capacitors | |
| C401,C402 | 354761009 | 10 μ F,35V,Elect. |
| C407,C408 | 354761009 | 10 μ F,35V,Elect. |
| C409,C410 | 374722234 | 0.022 μ F \pm 5%,50V,Plastic |
| C411,C412 | 354780339 | 3.3 μ F,50V,Elect. |
| C413,C414 | 374722234 | 0.022 μ F \pm 5%,50V,Plastic |
| C417,C418 | 354741019 | 100 μ F,16V,Elect. |
| | Resistors | |
| R405,R406 | 5104225 | N11RGLC250KWT22Z,Balance,variable |
| R417,R418 | 5104230 | N14RLC100KWT22Z,Treble,variable |
| R421,R422 | 5104230 | N14RLC100KWT22Z,Bass,variable |

VOLUME CONTROL CIRCUIT PC BOARD (NAETC-4335-4)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|-----------|--|
| Q451 | 22240322 | LB1639,IC |
| C453,C454 | 374724734 | 0.047 μ F \pm 5%,50V,Plastic capacitor |
| C473 | 354741019 | 100 μ F,16V,Elect. capacitor |
| R459,R460 | 5104243 | N16RGM100KBTP25F,Volume, variable resistor |
| S451 | 25035609 | NPS-122-L571,Loudness switch |
| P451 | 25050267 | NSCT-3P95,Socket |
| P452 | 25050268 | NSCT-4P96,Socket |

VOLTAGE SELECTOR SWITCH PC BOARD (NASW-4338-4)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------|---|
| S902 | 25065287 | Δ NSS-22113P,Voltage selector switch <W> |

NOTE: <D>:120 V model only
 <P>:230 V model only
 <W>:Worldwide model only
 <Q>:240 V model only

NOTE: THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

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